

Industrial action threat over BT sale

by Donald Kennett

THREATS of industrial action by militant engineering union branches have greeted the government's plan to turn British Telecom into a private company. Such action could put the banks out of business within weeks, according to London City branch of the Post Office Engineering Union. On the user side, enthusiasm for the plans has been muted.

Action aimed at reversing the government's decision to sell British Telecom is one of the main issues being discussed at the Post Office Engineering Union executive's monthly meeting this week.

POEU research officer Roger Darlington said the union would want to consider such action very carefully since the aim was to influence the government rather than BT's customers. But at the same time it is facing pressure from some of its branches, led by Liverpool Internal and London City branches, to take action sooner than later.

Liverpool Internal branch secretary Phil Holt believes that unless the government is persuaded to change its mind before putting the enabling Bill before Parliament in November, the sale of BT will go ahead.

"If the executive is serious it will start an immediate campaign, starting with a protest action and then sanctions which escalate until the government changes its mind," said Holt. "If it is not serious, then it is up to the branches."

Telecommunications Managers' Association chairman Stephen Finch said his association had been arguing for years that BT should be properly financed and this

seemed to be the government's only means of doing it. The move would also help BT to become more efficient by making it accountable to shareholders.

He was less happy about the proposed Office of Telecommunications. "Its role is very unclear," he said. "It has been likened to the Office of Fair Trading, which doesn't fill us with great enthusiasm. Ensuring fair trading and fair treatment in the market is a very small part of the need. Who is going to ensure that the UK has a first-rate telecommunications infrastructure?"

Computing Services Association director-general Doug Byeons was worried that the Office of Telecommunications might be a political appointment responsible to the Industry Secretary rather than an independent body. The sale of BT, he thought, should be a stimulus. For this reason he welcomed it.

"But the part we liked most, he said, 'was the statement on general licences for value-added network services. That is what we have been fighting for.'

The Telecommunications Engineering and Manufacturing Association was originally keen on the idea of a separate authority to control telecommunications, but a spokesman said: "This one isn't exactly what we were looking for. We were looking for something independent of government."

"There is a lot of argument or discussion to come yet - as can be seen from the reaction from the Opposition and the POEU."

The Society of Civil and Public Servants, which has 6,500 members in BT, warned that there were immense dangers in handing over such a vital service to the private sector.



HALL... To control the research cash.

ICL money for university computer research

by Robert Parry

ICL is to cash in on British university computer research - by putting up its own cash. "It will be a few hundred thousand pounds this year," says ICL's director of product line planning Colin Haley, "half a per cent of our R&D budget." The money will go to fund collaborative research with universities and research institutes, to projects that look likely to be of commercial value to ICL.

While the amount would make little difference to any major development project, the ICL view comes down to pennies spent on research being worth pounds on development.

The money earmarked for the scheme will be handed out by a University Research Council ICL has set up, led by Peter Hall, an ex-director of ICL and current

British Computer Society president. Other council members include Geoff Manning, director of the Rutherford Appleton Lab, as well as various past and present ICL directors.

Research areas to be considered for funding fall into five groups: novel architecture and languages; specification and design methodology; expert systems; man-machine interfaces; and distributed processing and networks.

While the scheme is limited to British universities initially, Hall maintains that Robb Wilmore's concept of the URC is international. It may involve sending people to leading US and European research centres later on. But it will remain separate from any industrial research links like that with Fujitsu in Japan.

Collaboration activities will involve support - through

providing equipment, personnel, money to hire research assistants - and seminars or courses involving ICL staff and researchers from universities.

ICL staff in the research department at Stevenage are likely to provide the main links, going out into universities, then coming back into ICL, but into development work rather than research.

"Research must become part of the natural order of things," says Haley. "To be any use research must move to development at the right time. The trick is to identify those times." The URC aim is to put the money where it will do ICL good, not to support "worthy causes," he adds.

But it is not all one-sided. ICL does not wish to stand in the way of university researchers' "right and proper aspirations" says Hall.

Permanent showcase for IT products

by Nicholas Enticknap

AN AMBITIOUS plan for an international information technology market centre was promoted in Europe last week. Jonathan Noonan, director of international operations for the Fidelity Group, an American money management firm, made a whistle-stop tour through Germany, France and the UK to talk to major information technology companies about the group's Boscom venture.

Boscom, an abbreviation for Boston Computer and Communications Marketcenter, is intended to be a permanent showroom for information industry products, a forum for producers and resellers to meet and do business, a centre for exhibitions and conferences, and a host for several thousand educational sessions a year.

Noonan emphasised the international nature of Boscom. "There will be permanent tenants in the showroom areas from all the major countries, not solely American producers. The audience will also come from around the world: they will be people who are looking to buy computers and communications equipment for professional uses, resellers and so on."

He added, "My purpose in Europe is to talk to companies in different countries. By the time I leave I will have spoken to 15 to 18 different companies. We can provide them with a permanent presence, not just for explicit selling, but to increase their recognition in the US marketplace."

The new centre will be at Commonwealth Pier No. 5, Boston, just across the channel from Logan International Airport. The estimated capital cost of the project is \$100 million, and the opening is scheduled for spring 1984.

Judges reject Burroughs' case on £500,000 ICL contract

by Nicholas Enticknap

ONE of the three prongs of Burroughs' legal assault on the award by the Oxfordshire Regional Health Authority of a £500,000 contract to ICL was blunted in the High Court last week.

The Court of Appeal refused Burroughs' application for an injunction to prevent the contract being completed.

The contract covered the hardware for a system called Stoke, to be installed at the Authority's Northampton District Data Centre.

Burroughs had decided on a legal campaign against this

contract on two grounds. First, the company alleges, the contract was awarded contrary to EEC legislation passed on January 1, 1981, and designed to prevent any form of preferential purchasing. Secondly, if anyone puts out a tender documenting the criteria for selecting a supplier, then those criteria should not be allowed to change.

The first battle in this campaign, in which Burroughs was seeking an injunction to prevent the authority from actually awarding the contract, has now been lost, both in the High Court and on appeal. However, a Burroughs

spokesman confirmed that the fight would continue.

The appeal was turned down on the grounds that an injunction would be almost impossible to police. Lord Justice Griffiths pointed out that the authority could in response meet again and choose ICL again, and if this happened it would involve an immensely long and complex investigation into the thought processes of the authority's members.

The judge also felt that the decision in this case was unlikely to have the effect of determining similar computer acquisition decisions in other installations within

the Oxford health region, pointing out that this would mean the authority would lose all the advantages of an open tender procedure.

There are seven other tenders involved. Value of the contracts concerned was estimated at £6m. Burroughs will continue the fight in two ways, neither of which is likely to result in swift action. First, it is bringing a case in the High Court claiming damages for a wrongful decision. No date has yet been set for this hearing.

Secondly, it has made an approach to the European Commission arguing that the decision is contrary to Community law.

VDUs may be cause of abnormal pregnancies

by Howard Karten

THE British Columbia Hospital Employees' Union in Vancouver is removing all its VDUs and advising members to avoid use of the devices. According to spokesman Jack Gerow, six pregnancies among women who use the devices heavily in Vancouver area hospitals only one

pregnancy has been normal.

Gerow noted that this situation is similar to that in the Solicitor-General's office in Ottawa, where seven out of seven pregnancies among VDU users had complications of one sort or another.

The Canadian Federal Gov-

ernment is now studying VDUs and is expected to issue a report towards the end of the year.

Some of the devices in this instance are several years old, Gerow said, and so may have higher levels of radiation than newer models. Nor has a causal link between the devices and the ab-

normal pregnancies been firmly established.

A report released about one year ago by the US National Institute of Occupational Safety and Health absolved VDUs of Gerow said he was aware of the findings, but was somewhat sceptical about them.

Europe is losing small business market...

by Robert Parry

EUROPEAN suppliers are losing out in the small business systems market. Their share of overall SBS revenues in Europe, 43% in 1981, is down on 1980. They are losing ground basically because desk-top computers are moving in at the bottom end of the market.

Although two European manufacturers, Olivetti and Adler, dominate the low end of the SBS market, US suppliers still rule the upper reaches. Burroughs, NCR and Wang feature among the leaders, joined by Europeans Nixdorf and Philips for systems costing over \$50,000, but all are overshadowed by IBM.

System 34s account for 38% of revenue, according to a report from IDC Europe on the European small business system market.

Some traditional SBS suppliers are fighting back against the tide of micros, notably Olivetti and Adler which have both brought out their own desk-top machines. But the report estimates that already 20% of accounting machine replacement - where moves to small business systems would have been logical - is taken by desk-tops.

Because of the strength of the micro challenge, the SBS market as a whole is changing shape. Growth is faster towards the top end of the market, and systems costing more than \$50,000 are expected to make up three-quarters of overall revenue in 1987, compared to two-thirds for 1981.

The market is healthy, and IDC's report predicts that the European market will be worth \$5,200 million in 1987, an average growth of 20% a year from 1981's \$1,800 million.

Traditional SBS suppliers are under threat at the higher end of the range too. Minicomputer manufacturers are looking for a slice of this market to offset slower growth in their traditional technical markets.

The UK is expected to grow faster than the other major European countries, with annual shipments predicted to triple by 1987. SBS suppliers here are moving upstream to counteract the impact of desk-top micros, and are running into competition from the mini system suppliers.



de BENEDETTI... Group profits may be lower.

... as Olivetti takes lead in UK sales

by Nicholas Enticknap

BRITISH OLIVETTI has undertaken a major restructuring of its marketing operations. Key changes are a fundamental switch of emphasis in the operations of its Business Systems Division, and the establishment of a new Micro Division to handle large volume marketing of the new 16-bit M20 personal computer.

Normally such changes mean a company has been getting it wrong, but this is not the case here. British Olivetti has just reported turnover up 40% over the first six months of 1982; no figures were published, but this must mean first half sales over £40 million.

No profit figures were published either, but a spokesman said the return was significantly better than for the same period last year. This rises counter to the trend within Olivetti as a whole. Chief executive Carlo de Benedetti said last month that group profits for 1982 were expected to be lower than last year's.

The company says the results are due to good performance by all divisions. It claims to have done exceptionally well with three product ranges: the ET electronic typewriters, the 10/10 stand-alone word processors and the Line 1 terminal systems, to the extent that all three are the current market leaders on sales volume.

British Olivetti's Business Systems Division, said the spokesman, has been the basis of the company's build-up for many years, selling business computers in the £3,000 to £30,000 price range. Now the typewriter and word processor range is being replaced by micro systems, and Olivetti is selling these through specialist micro dealers.



Will the next Jaguar cost less?

British Aerospace/Poly plan to cut defence costs

by Robert Parry

CHEAPER British military electronics is on the way if a government-assisted scheme achieves its aims.

British Aerospace Dynamics Group Bracknell Division - lately Sperry Gyroscope and Bristol Polytechnic have been awarded £145,000 under the Teaching Company Scheme for a three-year project to analyse production techniques used in the manufacture of defence electronic products.

Four graduates - in ergonomics and work design, industrial training and management, engineering, and production engineering and management - have

been appointed as Associates in the Polytechnic and will do most of the work on the project. They will be based in BAe, but will come back to the Polytechnic regularly.

Computer studies, management studies and engineering departments at Bristol are involved, co-ordinated by the South West Regional Management Centre based there.

The initiative for the project came from BAe's Bristol plant, but it encompasses other plants in Plymouth and Bracknell. The electronics products manufactured there feature in the navigation, guidance, control and data handling applications.

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BIDE... Call for quicker introduction of new technology.

Speed up technology - CBI

by Maggie McLennan

AN industry chief last week called for faster introduction of new technology as an aid to increase UK exports.

Sir Austin Bide, chairman of the Confederation of British Industry research and technology committee, and chairman of Glaxo Holdings, made the call in London at the launch of a CBI report on putting technology to work.

"An international race is on to be the first to market new high technology products, processes and services. It is a race that Britain cannot afford to lose," he said. "For the winners, the prize is

substantial new business. And that could give us the chance to make a start on cutting back the debt queues."

The report on new technological developments and opportunities for future growth is the result of interviews with over 50 key figures at universities, companies, research organisations and government laboratories. Six broad areas were covered including microelectronics, biotechnology and information technology, with advanced fibre optics and fibre-reinforced composite materials being examined in more detail.

Shortcomings in the British "system" which might slow down innovation were also analysed in the report. Resistance to change on the part of many professional institutions, generally poor understanding of science, technology and industry and the lack of an industrial forum in which to develop policies and objectives, were blamed for slow response within companies.

Other factors cited by the CBI included shortages of qualified engineers, technologists and technicians for design, development and production work and difficulties in raising risk capital for technology-based investment.

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			01-661 3122		
			01-661 3123		
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			01-661 3188		
			01-661 3189		
			01-661 3190		

Auditors 'watchdogs for privacy' — NCC

by Andrew Thomas
COMPANY auditors could be the public watchdogs for privacy, as well as for financial malpractice.

That is the proposal of the National Computing Centre and major accounting firm Deloitte, Haskins & Sells, based on their pilot study made in the North-west of England.

They propose that external auditors check that computer systems meet legislative requirements, in a report submitted to the Home Office.

Half of the £70,000 needed to carry out the investigation came from the Department of Industry, and the remainder from the coffers of the NCC. Auditors from Deloitte, Haskins & Sells carried out the investigations on organisations

such as the Trustee Savings Bank, Royal Life Insurance, United Biscuits and the City of Liverpool Corporation.

According to Ian Douglas, a senior consultant at the NCC who worked on the project, the privacy shortcomings discovered were of a minor nature.

"The sort of thing we found was much as we expected," said Douglas. "There were no major breaches. The main shortcomings lay in areas such as waste disposal and in the fact that not many companies validate personal data, such as dates of birth, in the same manner as financial information."

The auditors used standard techniques, and checked areas such as access control to computer and terminal rooms. "We also ran

Deloitte's Auditee package against personal files looking for odd data — the sort of thing you didn't expect to be there," said Douglas.

The audit team comprised four people, two with extensive audit experience, and two with a computing background.

The report claims that external auditors, provided they have adequate computer experience, are well qualified to carry out privacy audits. The NCC expects that some form of independent check will be seen as desirable even if the Home Office does not make such checks mandatory.

"The project showed that the costs of such an inspection was relatively small," said NCC director David Fairbairn.



FAIRBAIRN... "Inspection costs relatively small".

Printers presented to secondary schools

by Andrew Thomas
SCHOOLS in Leeds have been given free printers following a chance meeting at a Rotary Club dinner.

David Noble, computer manager at cash-and-carry firm Makro's Leeds store, had 20 Hewlett-Packard 2762A printers each worth £5,000 when new, standing idle due to a hardware upgrade, and, in conversation with the chairman of one of the local schools' parent-teacher associations, discovered a worthwhile means of disposing of them.

Every secondary school in Leeds has a Research Machine 380Z,

provided by the local education authority and government funds, but they have to buy the peripherals themselves. As a result, not every school had printing facilities and were unable to make full use of the machines.

"The obvious thing was to give the printers to them," said Noble, "so we installed one on a trial basis."

No major problems were encountered, and Makro presented all 20 printers to Leeds education department, three or four going to each school. And it looks as if other schools in the area will be receiving free hardware soon.

MP attacks technology venture cash

● From front page

which means that it has stopped doing any business and that there are no plans to re-form the company, leaving users of some 100 Altergo products out on a limb.

Altergo had already withdrawn its licence for the Shadow II teleprocessing monitor and Quota II software in September 1981, but it was unable to terminate licences for Shadow customers using CPG and the GUTS time sharing system until June this year.

A company called Altergo Inc was set up last year by Altergo to support the 200 users of Shadow II and Quota II, but there has been some confusion over the remaining 100 customers during the handover from Britton-Lee.

According to Elizabeth Skerrett-Smith, marketing manager for Altergo Software, the company is suing Britton-Lee for hundreds of thousands of dollars "the monies that should have been paid in royalties since the takeover."

'Anything you want' out of Aids database

by Nicholas Enticknap
THERE are now so many sources of government financial assistance that it is easy to miss out through sheer ignorance. And even if you do know about a scheme, the details are constantly changing.

To help those whose job it is to know about such things, a unit at Strathclyde University has built a database called Aids.

Aids is the brainchild of Kevin Allen, co-director of the Centre for the Study of Public Policy at the university. Allen describes himself as "having a missionary zeal about these industrial aids and making the public aware of them," and has published a book listing them all.

The details in the book have been entered into a database held on an ICL 2980 at Edinburgh University. The database access system was designed by Allen's colleague, Dr Stephen Tagg, who is director of the social statistics laboratory at Strathclyde University.

Allen describes the system as "very user-friendly and simple:

you simply enter numbers, very much as on Prestel. We find that people can sit down at a terminal, and after about 45 minutes can get anything they want out of it."

The system works on a principle of filters, cutting out inappropriate sources of aid till you are left with a shortlist of suitable ones. There are filters for location, industry, purpose of aid (such as to buy equipment, or to help the disabled), nature of incentive (grant, loan, or tax concession) and administrative department.

When a short list has been obtained, the user can browse through the list, and obtain details of any time restriction on the scheme; the address to apply to, and so on.

Allen says he has been having discussions with three potential large-scale users of the system — a government department, a bank and a regional authority. The system will not be marketed, but Allen would be happy to talk to anyone who feels they can make use of it.

IBM-Mitel link to develop 'unique' family of line-switching systems

by Donald Kennett

MITEL and IBM are to co-operate on developing a new family of "unique line switching systems" for IBM. Detailed plans for the agreement in principle have yet to be worked out and IBM emphasises that it is not committed to marketing a product.

It also says it will continue to market and enhance the 3750 and 1750 PABXs it sells in Europe.

IBM has never sold telecommunications equipment in the US, although it registered the European designed and built 1750 with the Federal Communications Commission early last year and has installed several in its own offices there.

Its involvement in the US telecommunications market is so far confined to owning a one-third share of Satellite Business Systems, which is run as an independent company. But a spokesman said it was reasonable to conclude that the company intended to be active in telecommunications.

A Mitel statement described the arrangement as blending its PABX capabilities with IBM's experience of information processing and the European telephone market. Neither company would go into detail on its intentions, but IBM described as inaccurate a report that office equipment or office automation would be involved.

Mitel was founded in 1973 in Canada by two Britons, and a UK division was set up the following year. It has doubled its turnover

annually for the last eight years and this year expects to install more PABX lines than the current world leader, Western Electric.

Founder and chairman Dr Mike Cowpland says, "People think we are a new competitor for the giants, but we are the giant now." It expects to achieve sales of £136 million and to install 1.2 million lines, to Western Electric's 1.1 million, this year.

The secret of its success, Cowpland says, is combining chip manufacture with systems manufacture. Its ISO-CMOS chip technology combines the speed of Schottky TTL with the low-power consumption of CMOS and enables it to put analogue and digital circuits on the same chip. Its chip designs enable it to terminate 16 lines on a single printed circuit board, while its competitors' boards can only handle from four to eight lines.

It expects demand for its latest product, the SX-2000 10,000-line all-digital PABX, to which ICL has already signed up for marketing rights, to be so strong that it will have to ration supplies.

ICL, which teamed up with Mitel last October and expects to deliver the first products under the arrangement in the middle of next year, welcomed IBM following its example. "ICL believes that the announcement reinforces the strategy ICL has adopted in integrating an all-digital PABX and its open system local area network policy within its networked product line," said the company.

Mitel and ICL both agreed to support the local area network standard announced by the European Computer Manufacturers' Association in June. IBM was a notable exception to the agreement, while anxiety about what its approach to local area networking will eventually be, has given rise to considerable speculation.

Mitel and IBM are believed to have offered active co-operation to British Telecom's recent attempts to get voluntary agreement on standards for signalling between telephone exchanges. The standards would enable different makes of PABX to co-operate in providing enhanced facilities such as "ring back when free" and transferred calls, instead of their only being available between extensions on the same exchange or across networks of exchanges of the same make.

BT says that liberalisation of the network means it is no longer in its power to enforce such standards, since they are not essential to setting up a call. Discussions were dropped when some PABX manufacturers made it clear they thought the standards would be against their interests. Existing customers wanting to expand their networks would have a free choice of supplier, rather than being dependent on the original supplier to provide enhanced facilities across the whole network.

Once again it seems to fall to users to encourage the formation of standards and to specify them in their calls for tender.

SALES BRIEF Leasco wins police contract

LEASCO Software has won a £500,000 contract from Cumbria Police to supply a resource management and message switching system similar to the one it supplied to West Midlands Police. Leasco was picked from a shortlist of six companies.

The system, which is due to be implemented late next year, will be based on two Ferranti Argus 700GL minis operating in hot standby mode and it will allow the county's seven control centres to pool all their information. It will also be linked to the Police National Computer.

Bureau on TV

ENTERPRISE, the bureau that runs airline booking services for television companies on its Honeywell computers at Thames Ditton, has signed up TV-AM, the new breakfast television franchise holder, as its 14th customer. TV-AM has commissioned an enhanced version of Enterprise's system to enable it to handle bookings for several channels and several regions. The enhanced version will also be offered to existing clients.

NCR ousts ICL

HILLS Pharmaceuticals is to replace the ICL 2904 at its head office in Bury with an NCR 1-9050 at head office linked to NCR 1-9020s in its Birmingham, Huddersfield and Warrington offices.

Bank's fourth

BARCLAYS Bank has ordered a fourth OCR Scandata optical character and magnetic ink recognition system for its Northampton clearing centre. The system, due to be installed next month, cost £280,000 and includes a 128 Kbyte central processor, two 33 Mbyte disc drives and other peripherals.

Councils' choice

DACOLL has won orders totalling £300,000 from eight local authorities. The orders were mostly for Dacoll Democrat microcomputers and M248 selectable-protocol VDUs to access files held on mainframe from planning, estates management and personnel departments and careers offices. The authorities include Bradford, Humberstone, Manchester and East Hants.

Repeat order

FERRANTI has won a repeat order from London Transport for a £500,000 system to control power distribution on the Northern Line of the underground railway.

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Australian firm's UK users find lucky Star

by Maggie McLening

UK SYSTEMS house Star is poised to come to the rescue of 350 UK users of collapsed Australian-based Hartley Computer Company.

The London company is set to buy Hartley's UK operation, which is still trading under the control of the receiver.

Hartley specialised in systems for accountancy practices and about 10% of its UK users have the Australian company's own 3900 computer. The remainder use DEC, Wang or Data General machines.

Support for these machines comes directly from the manufacturer, but the Hartley computer was manufactured in Australia,

using a grant from the Australian government.

"In the past the Hartley mini has been a piece of fairly trouble-free equipment, but there could be problems with the spares being produced in Australia", said David Woods, secretary of the Hartley Users' Association.

"Hopefully, many of them will prove to be standard, so we can buy them from other sources. There is unlikely to be any problem with the software as it has been installed for a considerable time."

The user group as yet has no definite information on the possible Star Group takeover bid, although the receiver has promised that they will be in on the final

negotiations, so that they will have the opportunity to influence terms and conditions for Hartley users.

"As a group we would press for at least three years' support on our current equipment if Star does take over. This would be a reasonable period because everyone tends to write off equipment over a five-year term", explained Woods.

Star Group's Auditor range of minicomputer systems is roughly comparable to the Hartley HAPAS accounting systems, so it would be a logical move for Star to adopt the Hartley users.

Star managing director David Blechner refused to confirm or deny the takeover.

"We are talking to Hartley about acquiring them," he said.



BLECHNER... "Talking to Hartley about acquiring them."

STC record results

STORAGE TECHNOLOGY has repeated its record-breaking 1981 performance with record results in the first half of 1982.

Profit in the first half rose 43% while sales went up by 35%, compared with last year.

The 1981 rise was largely attributed to the delay in the appearance of IBM's 3380, so STC and Memorex were able to step in and supply more disc drives. However, the result from STC in the first half of 1982 underlines the success of the operation since IBM is now supplying 3380s in volume in the US.

The results show that sales are not flagging, an impression erroneously given in an article on disc drives (CW, July 22).

Derek Thompson, STC's UK managing director, was brought in to boost sales and marketing not to boost flagging sales.



ANDREWS... Selling his own company to himself.

Consultancy ex-employees set up new company with £500,000 orders

by Maggie McLening

A BREAKAWAY group of ex-employees of Allan D'Morais consultants has launched a new company with over £500,000 worth of orders.

Effectively the entire business systems division of the D'Morais group has formed Advanced Business Technology, leaving the specialist areas of education, time sharing and consulting with the original company.

Jan Andrews, a founder member of the consulting group, is now managing director of ABT, having been in the strange position of selling his own company to himself.

"It was really a question of putting your money where your mouth is. The funding required for quantum selling in the business

division was very different from other parts of the company", he explained.

"At Christmas we formed a management group to keep the staff highly motivated, but the company didn't agree with our proposals, so the business division was put on the open market."

"There was a lot of interest, but our group of staff managed to raise substantially more than expected, and the Midland Bank offered to match us under their Venture Capital Scheme, so we were able to top the highest outside bid. All the software and stock has come from the original business division, so we are effectively the same company as before, but with more freedom", said Andrews.

To coincide with the company launch, ABT has announced an

automated language processing system called ALPS based on Data General Eclipse minicomputers, and two revamped versions of existing turnkey systems for the manufacturing and distribution industry. These two, Component and Instrument Distribution (CID) and Office Supplies System (OSS), are aimed at the light engineering, electronics and office supplies distributors.

According to Andrews, the new company arrangement will enable his staff to get much closer to the users, of which there are over 40 at the moment, and offer a better service through tuning systems to their requirements.

Demand for the ALPS system is expected to be limited as it is aimed at a specialist area and costs between £120,000 and £130,000.

HP minis run into radio interference

by Howard Karten and Nicholas Enticknap

SEVERAL users of Hewlett-Packard HP-3000 minicomputers in Manhattan have reported an unusual problem: radio frequency interference has affected the data stored on their disc drives. The problem can be localised to the extent that with two systems in the same computer room, only one might be affected. Once it occurs, however, it is persistent.

There seems no reason why the problem should be restricted to Hewlett-Packard systems: other users may be suffering the same problem but be unaware of what is causing the trouble.

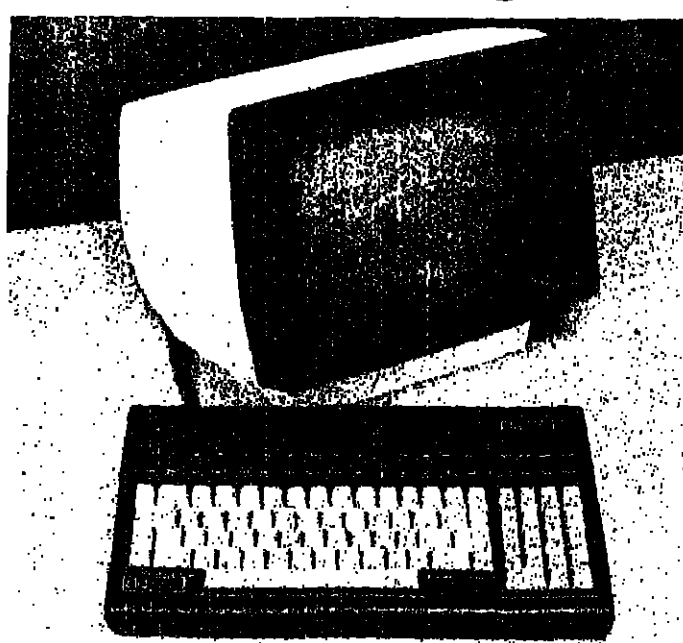
A Hewlett-Packard spokesman in New Jersey said that the specification for the electromagnetic interference for disc drives defined a maximum tolerance level, and if this was exceeded, problems could arise. In the short term the solution to the interference was simply to switch the drive off and on again.

In the longer term the cure was "to correct the environment". There are ways of shielding the room so as to prevent the interference from affecting the drives. The spokesman pointed out that Hewlett-Packard itself had offices within the affected area, and the computer system there had never suffered any trouble.

That Manhattan should be so badly affected was not surprising, he added: it is a media centre and has many sites with high levels of radio emission.

The spokesman added that the problem had been encountered in other areas, particularly in sites located close to airports. Hewlett-Packard in the UK, however, said that they had no knowledge of similar problems here.

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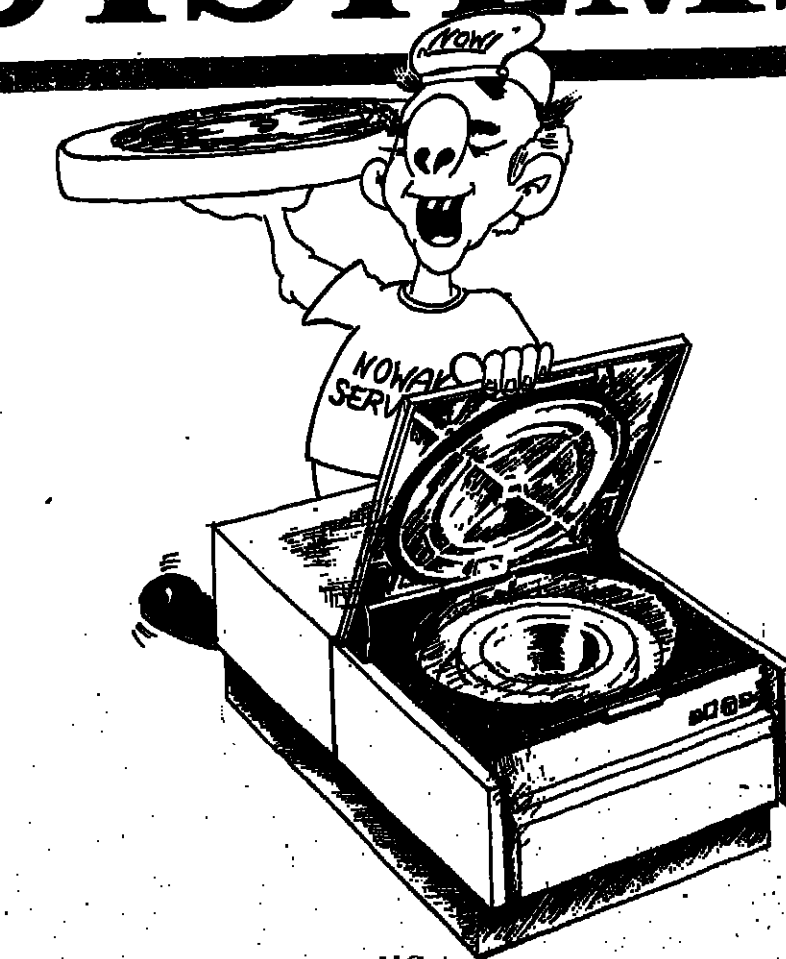
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do this first

Patent granted—after 10-year legal tussle

by Nicholas Enticknap
A SOFTWARE patent application for a financial package called Valport has finally been granted in the US after a 10-year legal battle. It represents another step forward in the long campaign to ensure that developers of commercially desirable software get a fair return for their inventiveness.

The problem besetting US software inventors is a Supreme Court ruling that software as such is not patentable. The inventor of Valport, Frederic Towers of Maryland, got round this by patenting a method of operating a computer

that runs Valport rather than the program itself.

Valport is a securities portfolio valuation program. Essentially it takes the shareholdings that make up a particular portfolio, multiplies each by the latest market place and totals the answers to arrive at the overall valuation.

Valport is sold not as a package but as a service on a time sharing basis. A database of some 60,000 securities is maintained and is updated daily. About a dozen different reports can be extracted from the database, and these are available to anyone who connects a

terminal into the system using dial-up lines.

What has been patented, therefore, is a method of producing securities portfolio valuation reports for multiple simultaneous users from a database which is independently updated on a continuous basis.

Valport, which has been assigned patent number 4,334,270, is not the first piece of software to obtain a patent. The distinction is claimed by an information retrieval system called Swift-Answer which, after a legal battle, was granted a patent last summer.

Systems house plugs gap for Wang minis

TWO critical gaps in software for Wang 2000 minicomputers have been plugged by systems house PME.

Being-based PME has announced a financial planning package that can be interfaced with integrated accounting software from The Office Manager (TOM), and a multi-currency option for the sales and bought ledgers. Wang users have long suffered from shortages of the appropriate software, and particularly from delays in developments from Wang itself.

"We had been looking for a ready-written financial modelling package for some time, but the only one I came across cost over £1,000, so we decided to write our own", said Michael Powell, managing director of PME.

The result is more reasonably priced for the Wang market at £400, and was written using Speed, the TOM system de-

velopment and file management tool.

Although the current version is standalone, Powell intends to write an interface to the nominal ledger so that budgets may be inserted directly.

Multi-currency facilities are a rarity in most accounting systems, although the demand for them is growing fast. PME's option for the sales and bought ledger modules of the TOM accounting package has already been installed at publishers Mitchell Beasley, a subsidiary of American Express, and there has been a great deal of interest shown by other TOM users, according to Powell.

The system caters for any number of different currencies, the rate of exchange at the time a transaction is generated being held on file to be later compared with the rate at the time it is cleared, the difference being entered into an exchange gains and losses account.

Condor for 16-bit micros soon in UK

RELATIONAL database system Condor, widely used on mini and mainframe computers will shortly be available in the UK for 16-bit micros.

MOM Systems of Gravesend, awarded sole UK manufacturing franchise by Condor Computer Corp, has been selling the package for CPM-based micros and will launch versions for the Act Sirius I and IBM Personal Computer within the next three weeks.

"Everybody is after the Sirius version", commented Bill Johnson, marketing manager.

There are three price levels for Condor, depending on the level of flexibility required. Series 20-1, which gives file handling and screen formatting costs £350; 20-2 offers multiple file handling with Project and Join facilities, for £375; and 20-3 for larger files is priced at £650.

by Maggie McLening



New golf handicapping rules should help to sell the Osborne 1 microcomputer.

Tee-off for Clubmaster as golfers face new handicapping rules

NEW golf handicapping rules in the UK should help to sell a system designed for the Osborne 1 microcomputer.

Answering the call for software to make use of Osborne's portability, ERA Consultants of Stockport, Cheshire, have designed a system for golf clubs that calculates individual handicaps, prints competition scores and handles club finance and administration.

According to ERA managing director Keith Roberts, himself a top category amateur golfer, the new regulations will change methods of calculating handicaps for one million golfers at about 2,750 clubs.

"I always had the dream that maybe we could write a system like this, and the catalyst has been the new regulations," said Roberts.

"With, typically, over 100 golfers in a competition, often playing in different divisions and sometimes with a handicap limit for the day, the control of scores and handicaps and the production of the score-sheet becomes a major task at an often inconvenient time."

To aid instant extraction of data, the Clubmaster system does not use numeric codes for players, all files being accessed by the use of a four-character abbreviation of the member's name, read straight from the score card. The system includes administration facilities for club membership and subscription, producing lists of unpaid members and reminders on demand, and Supercalc for financial modelling.

Written in C-Basic to run under the CPM operating system, Clubmaster could easily be transferred

to run on a different machine, but Roberts has no plans to move the entire package.

"Hopefully our system will become one of the 'gospel' systems on the Osborne, and it would be hard to find another machine suitable for use out on the greens and for the manager to take home with him to do his accounts", he explained.

"However, we intend to produce the membership and subscription programs as a standalone system for the open club and society market to run on any CPM micro, and to develop a re-order point stock control system for the Osborne."

Overall price of the system is £2,500, for which ERA Consultants also provide training and support. Two agencies have been appointed in Ireland and Yorkshire.

MICRO NEWS

Top of PDP-11 range is put on a single chip

THE DEC range of single-chip microprocessors implementing its PDP-11 minicomputer architecture has a new high-end offering.

The MicroJ-11 puts the power of a top of the PDP-11/70 mini range on to a single CMOS chip incorporating full memory management and protection.

It uses the full PDP-11 instruction set including the extended instruction set, single and double precision floating point instructions and microcoded debugging commands. The on-chip memory management can address four Mbytes of physical memory, and will support cache memory and multiprocessing.

The announcement by DEC of the J-11 marks a change in the company's strategy. The single-chip microprocessors, the T-11 introduced in March and the J-11, were initially developed for internal use. Putting the PDP-11 architecture on to single chips gives cost reduction, but also the opportunity to sell the chips to end users.

DEC's aim in this is more protection of existing board-level products and of the established computer architecture rather than to compete with volume manufacturers like Intel or Motorola. The idea is that single chip sales act as a lever to board sales.

Like the T-11, the new J-11 will feature on a board-level product

from DEC, and will be sold through distributors Rapid Recull and Hawke Electronics in the UK. Samples will be available next spring, at about £300 each, with volume availability towards the end of 1983.

Software development tools, taking advantage of what DEC feels is its strength - the large installed base and user experience in programming PDP-11, LSI-11 and VAX systems - will be announced soon, according to a DEC spokesman.

The chips are manufactured by DEC itself, which although it has only recently been moving towards supplying chips to the end-user market, produces as many devices as the volume semiconductor manufacturers - it just uses the bulk of them itself.

The J-11 uses 32-bit internal data paths, with 16-bit external paths, and a pipelined design. It runs with a 20 MHz clock. Power consumption is less than one Watt.

Like other chip manufacturers with 16-bit and 16/32-bit processors, DEC is looking to true 32-bit devices. In DEC's case this would be implementations of the VAX architecture on a single chip, driven by the same type of forces that brought about the current PDP-11 single-chippers.

But this will not be for some time, as DEC feels the market can be satisfied by 16-bit products for the time being.

Ai's UK distributor broadens its scope

THE UK distributor of microcomputer business systems from Japanese Ai Electronics has diversified into microprocessor development systems and industrial control, also from Ai.

British-owned Ai Microcomputers has added the FDPS-12D, for floppy disc programming system, to the ABC range of business systems already carries.

Later this year a version of this system aimed directly at industrial control applications, FDPS-22D, will be introduced, as will Ai's 16-bit microcomputer, the M-16.

The microprocessor development system is "by and large a fairly standard piece of equipment", says technical director Mike Burley. Like the Ai micros it is based on a Z80 processor, and comes with twin floppies and 64K of RAM as standard.

It is built round Ai's standard bus, and peripheral cards giving extra RAM, hard discs, printer interfaces and the like from the ABC range of business machines can be used.

But a PROM writer is built into the system, making it easy to incorporate application software developed on the systems into target systems, and the three processors

supported currently - Z80, 8080 and 8085 - have separate fully implemented assemblers. In-circuit emulators for the three processors are available.

It is a proven product, with about 5,000 installed world-wide - 1,000 of these in NCR in the US according to Burley - and reflects the Japanese company's roots in heavy industry and process control. It will sell for £6,700, including development software and an in-circuit emulator, with extra emulators costing about £1,500.

The system runs under two operating systems, Ai's own Dosket and CPM. Dosket is based on the DEC PDP-8 operating system. "It has Unix-like features and is very powerful, but you need to be a programmer to use it," says Ai Microcomputers managing director John Wheeler. "And it makes CPM look user-friendly."

Cross-assemblers for the Z8000 and 8086 will be available towards the end of the year, when Ai's 8086 based 16-bit comes in.

Wheeler has high hopes for this multi-user machine, reckoning it "runs rings round Sirius", but also fears it will hit the market for Ai's top end 8-bit machine, the ABC-26, very hard.

One-user systems link

TEKTRONIX is to develop means to link existing single-user microprocessor development systems to its minicomputer based multi-user system. A product to network existing standalone development systems, initially from Tektronix but spreading to products from Intel and Motorola, is due for an autumn launch.

The Tektronix development system at the centre of the network, the 8560, supports multiple users on a time sharing basis, running its own version of the popular Unix operating system, Tnix. But the market wants to link single-

user systems, says Tektronix digital products marketing manager John Mills.

"As we went out selling, we discovered users wanted to network single-user systems, really for management control. So we thought why not put this into a product?"

The choice of Intel's development systems as the first non-Tektronix products to be brought into the net is an obvious one. There are more Intel units in use than other captive development systems - aimed at the supplier's own microprocessor products.

by Robert Parry

Kode Services to offer Corvus maintenance

THIRD party maintenance for Corvus products is to be offered by Kode Services. Kode has been taken on as authorised maintainer in the UK and Europe. The agreement runs for five years and covers all Corvus microcomputer and peripheral products.

The Corvus range includes networking systems - the Omninet local area net - and a 16-bit workstation, the Concept. It centres around hard disc systems for microcomputers, based on Winchester from IMI. Last October Kode signed agreements with IMI and Kennedy and Seagate, to carry out repairs on their behalf on Winchester drives installed in Europe.

This agreement with IMI played a large part in clinching the deal with Corvus.

"The fact that we can repair the IMI Winchesters, and that we are already working on similar products was vital," says Kode's managing director John May. Experience in providing a maintenance service throughout Europe also counted, May reckons. "We've been doing this for Winchesters, so we can do it just as easily for other products."

Meanwhile microcomputer distributor ACT has extended the warranty period on its Sirius I. Faults on the first 2,000 units shipped in the UK were running at such a low level that ACT has quadrupled the warranty period from the standard 90 days to one year.

According to Peter Oldershaw, ACT's engineering director, there were only 11 faults in the floppy disc drives on the 2,000 systems - which he considers unusually low for what is the least reliable part of a microcomputer system.



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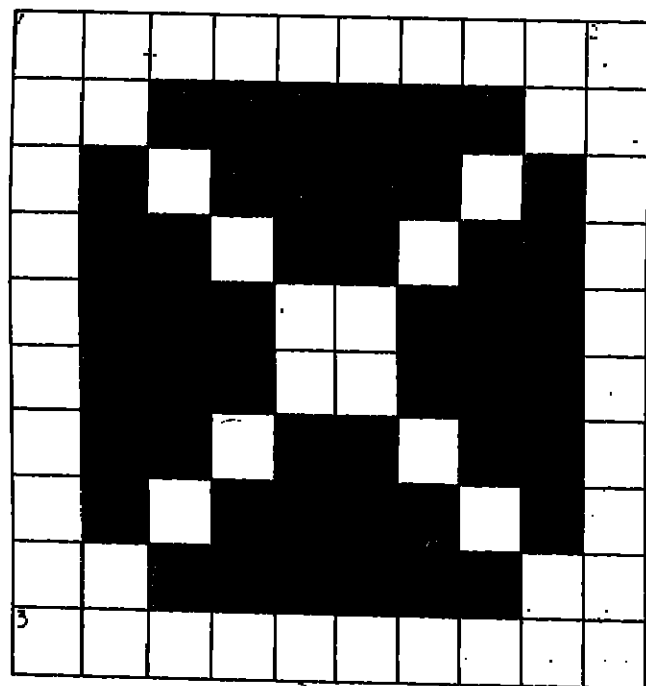
Middle East Computing began as a single-issue publication, backing the Gulf Computer Exhibition and Conference at Dubai last December. Its enormous success revealed such an urgent and widespread demand for computer product information that it will be published regularly from April.

6000 copies will be sent to established computer users or key personnel within government and major business organisations, in the Middle East countries predominant in the computer market. The circulation was compiled through the full research resources of Computer Weekly and IPC Business Press backed by contacts made at the Gulf Computer Exhibition.

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SOFTWARE BRIEF

Database Week in October

DATABASE WEEK, a series of linked tutorial events, has been announced by Permamon Info-tech.

The course is to be held in London between October 4-8, and will include an assessment of relational database systems by Dr Ted Codd of IBM and David Upham, president of Relational Database Associates.

Quick retrieval

SYSTEMS consultancy and software division of Lion Microcomputers has announced the FIRS II information retrieval package. Data may be input by hand or direct from a text file, and retrieved within one second regardless of the file size.

Cost control

SCICON Computer Services is now offering the Project/2 scheduling and cost control system developed by Project Development, Inc of Cambridge, Massachusetts, on its Univac bureau services. Project/2 uses the critical path method for analysis of project planning.

IBM's golden clouds still have black linings

WALL STREET, ever loyal to IBM, waxed quietly euphoric at the latest results from Ma Blue, despite some clouds on its horizon.

In an announcement which opened the half-yearly reporting season for American corporations, IBM led the way with figures that appeared to put it back on a growth path - something which has largely escaped the corporation for the last three years.

Profits for the first six months were 15% up at \$1.77 billion on the same period last year, and sales rose behind the profits by 13% to \$15.12 billion. The half-year figures were even more spectacular, with profits up 24% at \$1.8 billion, and sales 17% ahead at \$16.05 billion.

The quarterly profit of \$1 billion was the first produced by the corporation not for a traditionally

buoyant final quarter. The Wall Street stockbrokers showed their joy by pushing up the value of stock.

The value of IBM shares rose an average five dollars, adding \$2.5 billion to the value of the company on the stock market - that is the figure arrived at by multiplying the number of shares on issue by the share price, or in this case the price increase.

But there are two or three black linings to the sudden golden clouds on IBM's horizon. Earlier this year, IBM authorised the creation, though not the sale of 100 million new shares.

The sale of these shares on the market would dilute the current share value by 20%, apart from whistling for an unbelievable \$6.5

billion in investors' money, an event likely to depress both the share price and Wall Street.

Not that the money would do any harm to IBM or its debts of \$3 to \$5 billion, to which the company is adding a further \$500 million of 25-year loan stock this week.

Additionally, there is the unresolved dispute with the EEC Commission over allegations of abuse by IBM of its dominant position in the European computer marketplace.

Whatever IBM's actual position, the growing European anger over the US trade war with the Eastern bloc (and with everyone else) may negatively influence the EEC's attitude to IBM.

This will certainly be the case if, as one canny observer in California remarked, "The Japscam scandal does for IBM what Chile did for ITT." What he means is that if the Japscam situation proves (not necessarily legally) to have been a



Will the FBI connection cost IBM dear?

case of maliciously motivated entrapment, then IBM will emerge as the black sheep, putting its growing Japanese connections with Matsushita and the NTT in Japan in jeopardy.

In the wake of what may prove to be an ill-judged involvement in the FBI attack on the Japanese, the dislike may turn to government hostility worldwide and increased customer resistance.

by Kevin Cahill

IBM-Matsushita micros project looks set to go ahead despite rift

DESPITE the rift between the Americans and the Japanese following the industrial espionage case in California, new links between Japanese and US computer companies continue to flourish.

One of the major new connections is the joint venture project between IBM and Matsushita to manufacture a range of small micros and business machines in Japan for the American market. It is rumoured that the deal is about to be made formal.

According to Japanese sources, IBM approached Matsushita, one of Japan's biggest and most efficient electronics companies, about a year ago.

IBM, anxious to concentrate on its large machine business, but in-

terested in extending its product range into the personal micros which it recently entered, approached Matsushita to manufacture both additional machines and peripherals for what is likely to become a complete range of machines, comparable to DEC's.

The Japanese company dropped out of the mainframe market in the middle of the Sixties and currently produces a small selection of personal micros, none of which competes with IBM products.

Another link-up announced in Japan and also affecting one of the parties to the IBM secrets case, is that between Hitachi and Burroughs. According to the Japan Economic Journal, Burroughs is negotiating to introduce Hitachi's

advanced fibre optic techniques for telecommunications networks. Burroughs is also thought to be interested in a worldwide marketing deal for Hitachi's small scale computer systems.

The JI-J also quoted the Japanese Ministry of International Trade and Industry as welcoming the collaboration between the two companies and seeing in it a move to lessen the growing tension in high technology trade between Japan and the US.

An in the wake of a deal between Sperry Univac and Mitsubishi for the supply of 64K RAMs to Sperry, comes another much broader deal covering the joint marketing production and development of computers.

City brokers recover confidence in ICL

AFTER a quiet spring and early summer, the thoughts of the City of London's stockbrokers seem to be turning lightly to computers.

Part of the reason is undoubtedly the appearance on the USM of a number of new computer companies, among them Knight Programming and Miles 33. But the underlying reason, based on a random sample of City gossip and the recent 15% rise in the value of the stock, seems to be ICL.

Earlier this year, a number of stockbrokers publicly listed ICL as a recovery stock. This means that in the view of the money men the company was past the worst - not quite out of danger, but a good speculative buy.

The restored confidence in the shares also stemmed from a series of good profit forecasts made by brokers who follow the stock.

Nail Burton of brokers Henry Cook Lumsden said that he expected ICL to produce a profit of £20 million for 1981/82.

Peter Minton, who has always taken a cautious approach to ICL, suggested in a circular from brokers Laing and Cruickshank that £5 to £10 million was possible.

Irrespective of whether the cautious or the optimistic are correct, the key is that both are forecasting

profits, a remarkable change from last year's overall loss of £150 million.

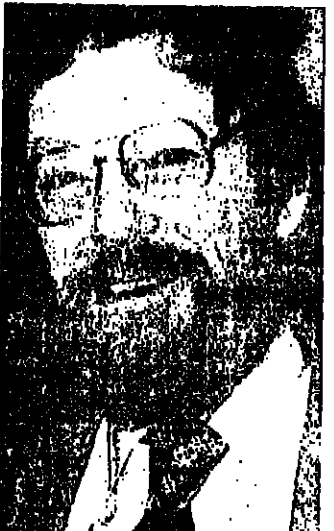
The company itself has strengthened its battered balance sheet by selling £32 million in stock earlier this year, and adding the £28 million assets of its leasing subsidiary.

In the first half the order book improved about 5% on last year and despite the caution expressed by chairman Sir Christopher Laidlaw, the brokers are looking for ICL's traditional pattern of better trading in the second half year, to boost that 5% to 15% or more.

The improved performance, taken with the permanent cost reductions of about £60 million achieved through the redundancy programme last year, is what has given the brokers their general optimism.

But, as one broker cautioned this week, there are two groups of ICL stockholders whose actions could affect the shares in different ways. Some brokers and their clients are sitting on huge paper losses from the period when ICL shares stood at £1.20 to £1.50. Some would like to see the value back there, even if it slid later, in order to get rid of a troublesome stock.

There is also a substantial group of shareholders sitting on fat profits from picking up stock at this year's low of 25p, and on the trail upwards to the current price of 66p.



MINTON... cautious.

Brokers Heseltine Moss recently advised their clients to look at the 100% rise in the share since they advised a buy and consider taking a profit.

The question for investors, shareholders and ICL employees holding the stocks is where is the share going, and how long will it take to get there?

Some brokers talk of £1.50 to £2.00 next year - and that is taking into consideration the expected rights issue at £1.

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Scan Data back in profit

THE worst seems to be over at Sussex-based Scan Data International which is back in profit for the half year, following £400,000 of losses last year.

The company, which markets Texas Instruments and Onyx equipment, came to the Stock Exchange Unlisted Securities Market on the day the market opened last year, and was also the first computer company to use the new facility.

This gave the company an unusually high profile in finance circles and its losses last year acted as a damper on the fledgling market in small computer company stocks.

However Scan chairman Martin Baldwin remained confident in the face of City uncertainty and his patience appears to have paid off. Turnover for the first half of 1982 rose to £1.94 million compared with £1.53 million for the same period last year.

Profits of £78,000 were declared for the half-year compared with losses of £140,650 for the same period last year.

Services slimmer after slump

by Boris Sodacca

THE UK computer services industry has taken off again - but is doing it with fewer people.

Latest government statistics show that the industry has recovered from its slump in early 1981 and that billings for the end of the year had gone up by 5% to £158 million and were 11% higher than at the end of 1980.

But the increase is not uniform and a close look at the figures shows that some traditional areas of revenue, such as data preparation, are shrinking.

"Employment in services companies is plateauing at the moment," said Doug Rycions, director-general of the Computing Services Association.

"Before, it had been going up by leaps and bounds, but now the large bureaux are reducing their staff mainly by natural wastage."

"Most services companies have increased turnover but the conference and seminar business has been hard hit, and those figures have crept into the statistics."

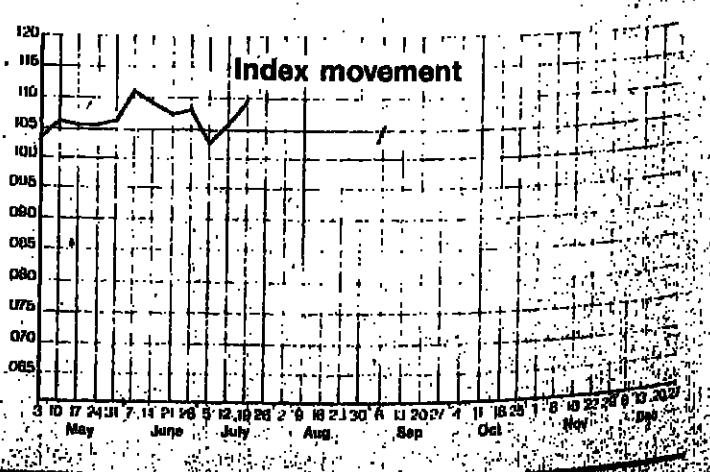
"The decline in data preparation services has been a long-running trend for some time now because this is all being handed back to the customer who is keying in data direct from online connections."

Rycions added that the consultancy and software products market was still very buoyant, but also pointed out that a new wave of companies providing micro software were not included in the figures. "There are a large number of small companies which were never included in the statistics but which will eventually find their way in as they grow."

CW SHARES TABLE

Date 28/7/82		Index 199.96		Change +4.77	
London Stock Exchange		Pence		US Stock	
High	Low	High	Low	High	Low
186	181	186	181	20 1/2	20 1/2
180	175	180	175	20 1/2	20 1/2
175	170	175	170	20 1/2	20 1/2
170	165	170	165	20 1/2	20 1/2
165	160	165	160	20 1/2	20 1/2
160	155	160	155	20 1/2	20 1/2
155	150	155	150	20 1/2	20 1/2
150	145	150	145	20 1/2	20 1/2
145	140	145	140	20 1/2	20 1/2
140	135	140	135	20 1/2	20 1/2
135	130	135	130	20 1/2	20 1/2
130	125	130	125	20 1/2	20 1/2
125	120	125	120	20 1/2	20 1/2
120	115	120	115	20 1/2	20 1/2
115	110	115	110	20 1/2	20 1/2
110	105	110	105	20 1/2	20 1/2
105	100	105	100	20 1/2	20 1/2
100	95	100	95	20 1/2	20 1/2
95	90	95	90	20 1/2	20 1/2
90	85	90	85	20 1/2	20 1/2
85	80	85	80	20 1/2	20 1/2
80	75	80	75	20 1/2	20 1/2
75	70	75	70	20 1/2	20 1/2
70	65	70	65	20 1/2	20 1/2
65	60	65	60	20 1/2	20 1/2
60	55	60	55	20 1/2	20 1/2
55	50	55	50	20 1/2	20 1/2
50	45	50	45	20 1/2	20 1/2
45	40	45	40	20 1/2	20 1/2
40	35	40	35	20 1/2	20 1/2
35	30	35	30	20 1/2	20 1/2
30	25	30	25	20 1/2	20 1/2
25	20	25	20	20 1/2	20 1/2
20	15	20	15	20 1/2	20 1/2
15	10	15	10	20 1/2	20 1/2
10	5	10	5	20 1/2	20 1/2
5	0	5	0	20 1/2	20 1/2

The table shows the closing prices on Thursday. The Share Index is based on the price of the UK companies in the table. Highs and Lows have been adjusted where necessary. *Shares traded on the Unlisted Securities Market and under Rule 163(2)(c).



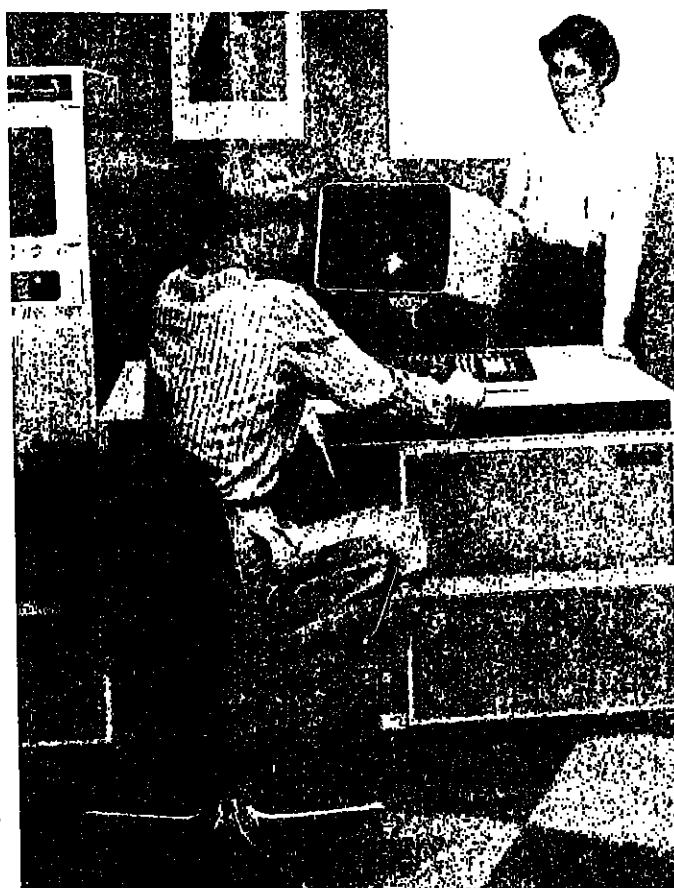
OP SPOT Jobs safe in US

IN the US earlier this month (impressed?) I had the opportunity to talk to a number of computer personages, and unearthed the interesting, not to say surprising, fact that our "American cousins" are lagging behind us in one rather critical area.

The advent of machines such as the ME29 and 4300 series has led to tales of operatorless systems, much redundancy, wailing and gnashing of teeth. (While there are undoubtedly some installations which claim to have no operators, one can usually find an employee who carries a job title of "systems programmer" or something of that ilk, whose background lies heavily in operations.)

In the US, however, no one I spoke to knew of a single redundancy resulting from the introduction of "no operator" type machines, and manning levels are traditionally higher there, with on average half as many operators again on each shift.

By the way, the consensus of opinion expressed by the Americans was that skilled operators are invariably more skilled and technically competent than their American counterparts.



Will the ME29 put you out of a job? - not if the US experience is anything to go by.

3rd-party maintenance is big business

THIRD party maintenance organisations are thriving in the US according to John Hartnett, director of planning and development for Cleveland-based TRW Inc.

The service and maintenance of computers across the US is estimated to be worth \$8 billion a year, and at least one eighth of this total is handled by third party contractors.

TRW has built up to a \$140 million turnover and has probably the largest share of this increasingly lucrative market. Hartnett believes that the private computer maintenance industry is destined to grow at a rate of 12% over the next few years, with some manufacturers getting in on the act and offering service contracts on their rivals' equipment.

"This share is sure to grow," he says, "because the computer industry is still proliferating and diversifying at a bewildering pace."

Next in size to TRW is Sorbus, a subsidiary of computer manufacturer Management Assistance. Control Data, General Electric, RCA and Western Union are all

involved in private maintenance to some extent. In addition to the big guns, there are an estimated 500 "one man and a dog" organisations scattered across the continent.

Hartnett cites the diversification of the computer industry as the main reason behind the mushrooming of third party maintenance companies.

"Every company of any size soon found itself using computer equipment used by half a dozen different manufacturers," he says. "The company had a maintenance contract with every manufacturer. Sometimes these added up to almost as much as the computers had cost. Having to call a different maintenance firm to service each piece of equipment was a nuisance."

"It soon became apparent that someone was needed who could service most equipment in the way that a good garage can service most cars."

The scale of TRW's operation can be judged from its statistics - 200 service centres throughout the US, and a fleet of 2,000 company cars for the engineers' use.



"I don't care if you are the shift leader, where's my listings?"

Who's the boss these days

IN the light of shift leader Ralph Ackard being sacked for allegedly exceeding his authority, I found myself wondering just how much clout the modern-day operator has. A few years ago, the shift leaders' powers didn't stop far short of sentencing errant pro-

grammers to death, but it would appear things have changed. Or have they? What changes have you noticed in the last few years? Does your word carry as much weight as it did? Come on, let me know what's happening to all you operators out there.

If all the crashes happen during the same shift, watch out for a rat!

ONE of the joys of working as an operator on night shift is the possibility that all the work can be finished before the day shift is due on. In such circumstances, it is usual to find that some, if not all, of the night shift get the chance of an early night (morning).

But there are other causes of packing up and going home early. A growing number of sites is finding that full engineering cover on the evening and night shifts is an expensive luxury, and these sites are opting for prime shift only maintenance.

So if the machine goes down in the middle of the night, the orders are usually, if you can't fix it yourself, and you've tried all the frigs in the book, wash up the coffee cups, put the cat out, and go home.

While operators as a breed are trustworthy and honest (I), there will always be a black sheep somewhere, just waiting for the

chance to do something devious. I've known, and I'm sure you have too, operators who "accidentally" stretched tapes just past the BOT marker. These tapes just past happen to be the only copies of a brought forward file, the failure of

other two shifts put together, each time for a different totally baffling reason. After several weeks of fruitless diagnosis, the regional support man who had been called in by the confused site engineer exclaimed in despair:

"Well, if it isn't any of these things, it can only be an operator vandalising the machine." He meant it as a joke, but checking showed that all the faults occurred when one particular shift was on nights.

Stationing himself in a secluded corner, where he could get a good view of the machine room, the engineer waited. As the evening shift drove off into the night, he saw the suspect shift leader enter the room, go up to the CPU, open the covers, and...

The engineer grabbed the shift leader just as he was about to connect the P13 battery across the processor backplane.

DISASTER

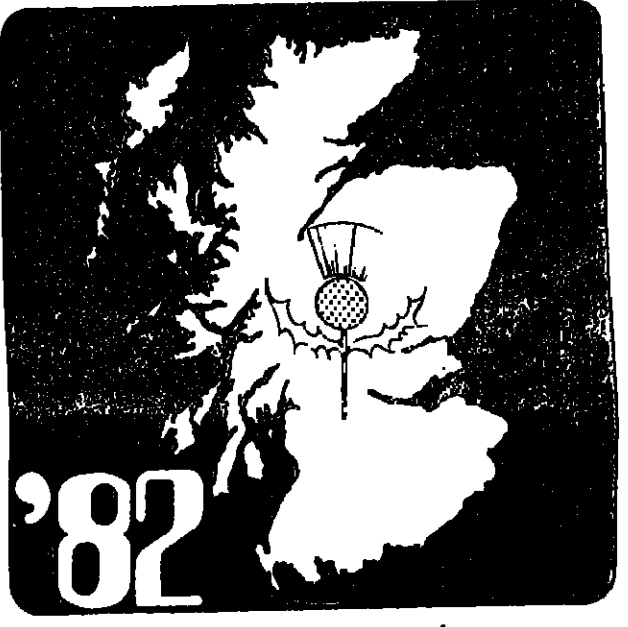
which means that the six-hour job which would have kept you there all night can't be run.

Such incidents are few and far between, as they must be, for even the dimmest of operations managers should be able to nose out a rodent if all the large systems run overnight fail more often than those run on the day shift.

One site of my acquaintance had prime shift only engineering cover, and a go-home-if-it-breaks rule. Sure enough, the machine fell over more often on nights than the

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The man who plans to do away with programming

ARNOLD ARNOLD is not an ordinary name. Neither is the man.

Known just as Arnold to his friends, he has set out with the aim of demolishing the computer industry as we know it and rebuilding it on what he believes is firmer bedrock.

He has announced the discovery of what he calls the general systems computer program generator. This, he claims, will eliminate the need for any software programming, although it will not dispense with human value judgments.

Arnold makes the further extraordinary assertion that his generator is a perfect model of the mechanical aspects of the central nervous system.

Just for good measure, he also claims that the algorithms and expressions embodied in his systems generator define the Unified Field Theorem — the relationship between universal processes such as gravity, electromagnetism, nuclear interaction and time.

Einstein identified this theorem, but was unable to establish it.

Such astonishing assertions clearly need looking into, so I went

along to speak to the man whom some regard as a great genius, others as a crank. I was confronted with a powerful personality who expresses views lucidly and eloquently about sex, God, politics, and in particular his general systems algorithm.

The discussion was fascinating — and he certainly did not strike me as a crank.

But Arnold still has a lot to prove, for he did not show me the mathematics behind his system. Hardly surprising if his claims are genuine — it would be a plagiarist's paradise.

All I can say is that he has a caucus of close confidants who are familiar with his mathematics and believe it to be correct.

The rest of us will have to be patient.

Arnold explains that his system begins with a defined universe within which the application will operate. It then generates series of numbers and sums that include the possible operations and relationships for systems of given size within that universe. These sums are, of course, finite, but are supposed to represent closely the infinite series that would exactly

ARNOLD... "What is evidently being sought avidly by governments, academicians and industry is already available for £15 or so any day or night in Soho."

model the system.

The big difference between his system, and conventional ones, he emphasises, is that it offers not one answer but two — a subjective one and an objective one. "It shows how the human nervous system and brain, or a computer, can reduce the sum of all possibilities within any defined environment to two options, or option groups," he says.

It is then up to the human recipient of the computer's wisdom to determine which of the two options is correct in the instance in question.

Arnold gives as a simple example of his system algorithm in action the game of noughts and

crosses played on a two-dimensional three by three board — nine squares altogether.

Arnold's system algorithm generates the sum of all possibilities both rational and irrational, which he says includes the intentions of the players. The sum includes all perfect and wrong moves and their redundancies within the finite series that characterises the game, including cheating. The total number of possibilities then comes to 618 billion, just for noughts and crosses!

The system reduces all these possibilities, eliminating redundancies to just a few key games characteristic of noughts and crosses.

The perfect game is, of course, a draw. Arnold makes an interesting observation on this, pointing out that there are altogether 45 possibilities exercised by both players in a noughts and crosses game played to the last move. There are nine choices for the first move, eight for the second and so on ($1 + 2 + \dots + 9 = 45$).

The first player enjoys 25 of these choices (every alternate number starting with nine), the second 20. "The first player therefore has five more opportunities to make a mistake than the second," he says, given that the draw is the perfect outcome.

For Arnold, the computer will never be any more than machine

that can sift quickly through a plethora of possibilities. He has no time for the "cranks" who promise us computers that will compute together.

Of people who make such extravagant claims, he wrote in the Guardian recently: "What is evidently being sought avidly by governments, academicians and industry is already available for £15 or so any day or night in Soho."

So there we have Arnold — crank or genius, possibly both! Nevertheless a provocative man who will stimulate a great deal more debate.

by Philip Hunter



ARNOLD... "What is evidently being sought avidly by governments, academicians and industry is already available for £15 or so any day or night in Soho."

What will it cost to make your next computer a fail-safe one?

How about an extra 2% on the bill?

Recently we asked some computer users if they'd like a computer with resilience. The ability to bounce back quickly after going down. A bit like asking a Managing Director if he'd like a guaranteed profit!

Not surprisingly, they all answered "yes".

Then we asked if they'd be willing to pay a lot extra for it. A resounding "no", from all but a few special cases. Again, we didn't fall off our chairs in astonishment. In fact, we had confirmed our suspicions that people want their money's worth from the computer hardware they buy.

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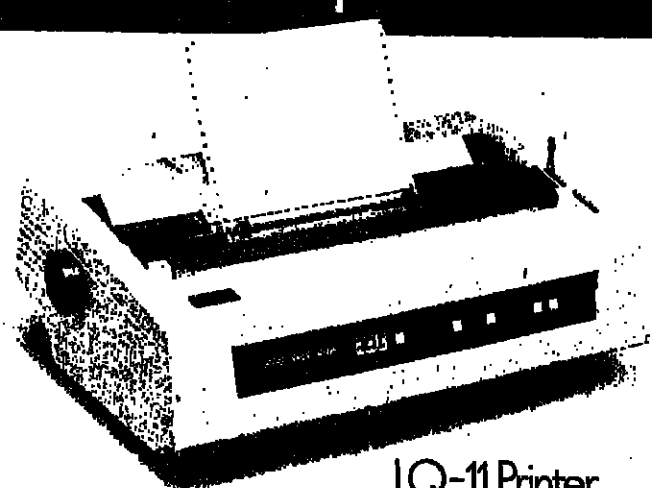
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It's a long and steep road to computer wisdom—especially if you're blind

COMPUTER programming has less barbed wire fences around it than most professions for blind people, but there are still problems. For although there are now many Braille terminals around, they are still limited in scope, and many are not all that reliable. It is particularly disconcerting for blind people when they encounter unexpected misprints and page throws.

Terminal rooms may be less hazardous places of work than many for blind people, but there is still the problem of getting there, and then avoiding briefcases, chairs and sandwich boxes left inconsiderately in the middle of the office floor. Surprising how easy it is to lose confidence when you keep tripping up on things.

Add to this the fact that blind programmers have to remember a lot that the rest of us can inspect on paper, and it is clear that their road to computer wisdom is indeed long and steep.

Tony Stockman of Blackburn, who is one of the first blind people to gain a first class honours degree in computer science, makes light of these problems.

He will return to Bradford University in the autumn to work for a PhD in medical computing. "I will be doing software to analyse heart rate variability in man," he says. "This will be based at Bradford Infirmary with data from real patients."

This work will involve reading electro-cardiograms, which will highlight another problem facing blind computer users, the lack of good graphics output.

Stockman explains that he is hoping to liaise with Bradford University on a project to produce hard copy graphs in Braille for blind users. "This may be specific to my work, but hopefully something generalised," he says.

Could this be yet another example of a marketable product emerging from specific university research?

Stockman suffered problems with the Braille terminal used for his degree course. This was a Sage terminal, which produces hard copy Braille output. "It wouldn't line feed and kept inserting odd paper throws," he says.

As a result, Bradford is looking at other Braille terminals, including Versabril, which produces soft copy Braille displayed on a screen. It is the equivalent of a VDU, and particularly useful for editing text or stored programs.

Such everyday nightmares as taking exams need special arrangements for blind people. For Stockman, the text of the exam papers was fed into the computer and then dumped in Braille.



STOCKMAN... Liaising with Bradford University to produce Braille graphics output.

He took the exam in a room of his own, using a portable Perkins Braille typewriter, then read his answers from the Braille copy he had made on to cassette. "I was allowed an hour extra plus reading time," he explains.

The filling of Stockman's four-year sandwich course was a year working for Rolls Royce in Bristol. Here he gained experience of a

wide range of hardware, including Digital Equipment, IBM and Control Data. "This was the main contributory factor to my first class degree," he says. "I was a good average for my first two years, but much better when I came back for the final year."

"Tragically, at least on paper, the sandwich course has now been scrapped."

PUZZLER

61 52 63 94 46 18

GIVEN the fact that the five "intervals" (between each pair of adjacent numbers) are not relevant to the problem, on what logical basis has this sequence been assembled? See page 59 for solution.

The Computers with MOMENTUM



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Principles of Infotecture—8

Technoscopes vital in system design

THE Eighth Principle of Infotecture states: "The art of system architecture is so complicated that we must be able to analyse the design status, relative to our design goals, from many levels, from many conceptual points of view, and at many points in time during development."

I like to call the tools used for such design analysis "technoscopes".

Technoscopes are conceptual tools for helping us to understand many aspects of a system. A well-known analogy to the Technoscope is the chessboard. Imagine playing successful chess with only the list of moves to guide you, while your opponent had a chessboard to evaluate the position.

Another well-known Technoscope is the decision table. Pert charts and even "a-squared charts" developed by Lano (published in the North-Holland TRW series) are Technoscopes for analysing system design situations.

I would like to argue here that we need several more such Technoscopes if we are to play the game of system design successfully.

A dramatic illustration of the need for such Technoscopes is the

account by Barry Boehm of TRW Systems where he tells a detective tale of trying to find the reason for an apparent lack of programmer productivity.

Analysis of lines of code produced, compared to lines of code delivered on their projects, yielded the startling fact that 180 lines were produced for every 100 actually delivered.

The cause was rewriting of the code to meet tough contract specifications for performance and other attributes.

But the code rewriting was not due to sloppy programming as you might expect. It was primarily due to faulty design specification, not at the lower levels of module and logic design, but at the higher levels of the system architecture specifications.

The basic cause was incorrect and particularly inadequate design technique specification. Maybe 30 design decisions had been made already, but another 20 or so were really needed to give the system the properties required by the contract.

The cause of the "bad design" was not bad designers — no more than it would be the fault of a chess team who lost if they were forced to play without chessboard visuali-

sation.

The cause seemed to be that when a few dozen high level decisions had been made for a project, nobody was really able to see the weak points in the design. There were too many techniques specified, and no systematic way of relating them to the contract requirements.

TRW developed a "Chessboard" (Boehm IFIP proceedings 1974 or Gilb: Software Metrics if you want to see his examples of it). They called it a "requirements/properties matrix". I have since modified the concept in minor ways and included it in my Design by Objectives toolkit (Function/attribute table). It is remarkably similar visually to a chessboard, but is simply a checklist of how the planned techniques of design impact the requirements. It leads to such a detailed and systematic analysis of the design that you are more likely to spot weaknesses in the design before you begin to code it or promise someone a delivery date.

That was the result at TRW. The rewriting of code was largely dropped when the requirements/properties matrix analysis was taken into use. The people were the same, but they had a better

Tom Gilb is an independent consultant, lecturer and author on computing topics.



Tom Gilb is an independent consultant, lecturer and author on computing topics.

Technoscope than they ever had before.

My experience is that most system designers worldwide are currently untrained in the kind of Technoscopes that would help them analyse the quality of their own work at early stages. We are therefore forced to discover our design inadequacies at later stages, where the cost of fixing things up is one or two orders of magnitude greater. And we don't, as a rule, have the time to do things over again.

It is the responsibility of systems and project management to seek out adequate Technoscopes to ensure that their people are trained in them and motivated or required to use them.

Failure to do this is failure to manage technology.

Tom Gilb

FOCUS

Exciting times for UK's first data city

THE IT authorities have had an uphill task promoting their wares to the country this year, competing for attention with such activities as the South Atlantic war, the World Cup, Wimbledon, the Papal visit and the Royal birth.

The IT organisation may be down but it is far from out. Its latest enterprise is to declare Milton Keynes an information technology zone. Until now, Milton Keynes has remained almost unknown and untroubled, partly through a general lack of local name and direction signs. But it will not be able to complain of shortages in communication links, paths and networks.

British Telecom is installing a fibre optic telecom cable throughout the area. The wideband FibreVision network

apparently will permit the routing of five television channels, FM radio, local pay TV, Prestel videodata and teleshopping systems into selected homes.

It could be that the planners hope to encourage DP centres to move into the location. The message from the US certainly backs the view that many DP centres are finding the high rents and inadequate space in city centres a strong reason for moving further afield. But New York-based DP Facilities Inc believes that the costs involved in relocation are seldom feasible. It quotes \$2 million as the price for moving a twin IBM CPU plus supporting peripherals from a city centre to a more rural site.

Balancing the removal cost sheet, however, are the more positive factors of additional space and

communication facilities. Frost and Sullivan, noted compiler of computer industry facts and figures, reports that data communication growth rates are expanding at 22% a year. It is becoming as easy to distribute data processing power across the country as it is across a building.

Remote data terminals, often backed by microprocessors, serve packet switching message services, voice/data transmissions, electronic mail and facsimile systems. No longer is it necessary or desirable to locate the data centre in the basement of head office or next to the corporate mail room.

There are certainly many beneficial factors for the DPM operating outside the city centres. With less job competition, computer per-

sonnel become more settled and possibly less demanding in terms of salary and fringe benefits.

Should Milton Keynes become the nominated data city of the UK, the local inhabitants can look forward to an interesting technological time. Without doubt, the local doctor will have been issued with a microcomputer system under the government's micros for GP scheme. Factories and shops will be automated under a further State enterprise.

NCC micro vans and trains will continuously circle the area distributing BBC Accorns to prospective users, while international micro vendors such as CMI, and training centres such as ITB, will establish operations on every corner.

Alan Simpson

10 YEARS AGO

From Computer Weekly of July 27, 1972

A COMPLETELY new online data entry and enquiry system, called Screenplex, which was designed and developed at Honeywell's engineering centre in Hemel Hempstead, was a major feature of the company's introduction of the system 700 range of business microcomputers in the UK.

The government's support for ICL did not involve any increase in the government's shareholding in the company, announced Minister for Industrial Development Christopher Chataway. In addition to the £14 million already allocated to ICL, the company was due for another £2.5 million later in the year.

A working party was set up by the British Computer Society to examine degrees in data processing. Optical mark readers were being developed for the hospital environment by the Department of Medical Computing at the new Charing Cross Hospital.

Kleinwort Benson ordered a 240K IBM 370/135 for installation in a new computer centre.



Cliff Dillaway is an independent consultant specialising in accounting software, taxation and payroll.

to decide for every session which account numbers it would be most useful to have as standard.

The computer does what it does best and the human operator does best too. Acknowledgments are due to KCS (01-680 7474) at whose accounting system I first saw this feature demonstrated.

Cliff Dillaway

DOWNTIME

Long distance problems of the lonely hearts

INHABITANTS of the Falkland Islands are turning to the important issues of life now that the quaking Argentinians have been evicted. One of these issues is sex.

A young Falklander has taken desperate measures by sending his vital statistics to Dateline International, the London-based computer dating company.

Dateline normally does two things for new members of its lonely club. First it performs a computer run to find a list of compatible members of the opposite sex. It sends this list to the new member, who can then go into action.

Second, Dateline adds new members to its database from which suitable partners for other new members are selected by the computer. Therefore a member has two ways of finding a date — he/she has a list of prospective

partners to approach, or he/she may get an offer that can't be refused from someone on whose list of partners he/she is.

Our Falklands man will, in common with others in remote parts, receive only half the service, in the belief that people do not make love by telephony. Therefore they get a list of partners, but do not go on the list of other members of Dateline.

But could not our Falkland friend find at home the long-haired blonde for which he asked Dateline?

Currently with the influx of UK soldiers, I should think the residents are having a pretty rough time," replies Fo Fountain of Dateline.

Truly Dateline is reaching parts that other computer dating agencies do not reach.

The space in technology

WHILE the US space program is often vaunted as the leading edge of technology in its many aspects it seems that this cannot be said for the components it sometimes uses. The space shuttle Columbia might be the ultimate in get-you-there-get-you-back transport technology over astronomical distances but in the fast-moving world of microelectronics it is horribly out of date.

For example, National Semiconductor, which is a large supplier of chips to the National Aeronautics and Space Administration (NASA), which is responsible for building Columbia, is keeping two of its old production lines open to supply Columbia. The company would have ceased production on these

items a long time ago, but for NASA.

The problem, as one NASA man said, is that NASA was tried and tested products, and not the latest whizz bang chips.

But NASA has a record of being a bit behind the times in computer technology. In 1969, at the time of the first moon landing, Mission Control in Houston was using IBM 360/65s. The current IBM processors at the time were the 370 series models 145, 155 and 165. With all the publicity that the moon shot generated, IBM's bosses looked in the fastness of their Armonk retreat were literally praying that the journalists asked about the computers.

Comparisons are odious

ADVERTISEMENTS for computers are often disfigured by the use of vague performance comparisons. But the phrase "CPU Utilisation 181% better", used in an advertisement for a Cincom computer comparing it favourably with its IBM equivalent, proved too vague for the liking of the Advertising Standards Authority.

The basis of two complaints to the Authority about this advertisement was not that such comparisons are meaningless and irrelevant, but that the figures were presented in a misleading way.

The gist of the benchmark result was simple: Cincom's CPU is nearly twice as fast as IBM's on this particular test. Why could the advertisement not say this? Sometimes the subjective adjective is more informative than the objective statistic (Chad's sixth law).

And how's this for a peculiar choice of number for a comparison from an advertisement for a graphics unit? "It has been designed and manufactured by Lowe Electronics and increases the graphics resolution capabilities of Genies seventy-three fold."

Seventy-three? Either that is carrying accuracy to the point of absurdity, or it is an attempt to establish authenticity by attention to detail.

Back to basics

THE Middle East is a land of contrasts (it says in my book of clever opening phrases). One of Egypt's largest banks, Banque Misr, is moving straight from manual accounting methods to an online system linking its 200 branches. The machine room itself represents a multi-million pound investment, and comes complete with its own standby generator.

But what of these contrasts, I hear you ask.

The diesel fuel for the standby generator was delivered by donkey and cart and pumped by hand.

Problems of cubism

THE Rubik Cube is just about the most intelligent test there is. It will tell you if a person is logical, practical, creative or intelligent, according to the initial reaction to it.

A Rubik Cube in its pristine state has each of its six faces split into nine smaller faces of one colour, a different colour for each main face making six colours altogether.

The small faces can be redistributed about the cube by rotating any one of the six main faces relative to the rest of the cube. Mathematicians call this the ability to rotate about any one of the cube's three mutually perpendicular axes.

The problem usually asked is to bring the cube back to its pristine state with each face made up of small faces of the same colour after having jumbled them up.

I tell you, it's a nightmare. But back to the intelligence test. The logical response is to try and do the cube the proper way. But the practical man will peel off the small colours stuck to each of the small faces and stick them back on to make the cube look as if it has been solved properly. This may seem like cheating. But after you have been sweating over it for five hours it is just plain common sense.

The creative response is to take the cube to bits to see how its mechanism works. But the intelligent response is to pick up an axe and smash it to bits.

Where are you?

THROUGH my incompetence we have lost the addresses of two people who recently submitted successful entries for our 1984 All That column on the topic of "The future of computing". The other is Norman Hilton, of High Barnet, Herts.

Would they both please send in their full addresses to this week's Computer Weekly.

Computer Weekly

Quadrant House, The Quadrant, Sutton, Surrey SM2 5AS

Thursday, July 29, 1982

Challenge of the Telecom sell-off

THE sale of British Telecom will inevitably be an election issue. But both government and union opinions agree that the battle is likely to be over by the next election, and the issue could be the grounds for a direct challenge to the government's rule.

The government is enjoying a peak of popularity and is probably as well placed as ever to resist such a challenge. But how much support will it enjoy for its plans to hive off BT, and with how much justification?

Both sides regard the telecommunications network as a national asset and want to see heavy investment in expanding and modernising it. In the union view the money should come from the government or as a loan from the City. The shares, when sold, will undervalue the assets and divert investment funds into dividends, starting an irreversible decline in network performance and causing steep price increases, the unions say.

The government says it cannot allow BT to borrow while it is a nationalised industry because that would be inflationary. Self-funded investment, it asserts, is actually customer-funded, which must mean that prices are unnecessarily high.

□ □ □ □

BT welcomes the prospect of freedom from governmental control, but urges the government to think carefully about the far-reaching consequences the sale could have.

One of the problems that existed when BT was a monopoly was that it was naturally reluctant to offer alternative services that competed with one another. This may not change in the liberalised environment, except that in meeting competitors head-on it may find itself in the position of offering separate services which also happen to compete with each other.

It also may not change with BT becoming a privately-owned company. But as part of its reorganisation programme to make it more commercially-minded, BT is preparing to split into 80 or 90 business units. Most of these, 61 in fact, will be regional network administrations, six will be divisions of BT Enterprises, four are the recently formed parts of BT Enterprises, and one is Network Special Services, which installs high-speed digital links. That still leaves room for one or two surprises, and scope perhaps for services which will compete with one another. This could enlarge the number of outlets available to designs from Marlesham Laboratory, which Industry Secretary Patrick Jenkin described as one of the attractions of BT to investors.

One of the results of Marlesham's work has been Prestel. Is that another major attraction to investors or is it going to disappear?

□ □ □ □

A privately-owned BT would be inclined to step up imports.

This is one of the government's concerns, and it plans to organise reciprocal arrangements with other countries to ensure UK exports find a market. But more important is the concern that growth in telecommunications services should help to bring greater efficiency to all other industries, stimulating exports of all kinds.

It has been suggested that efficient worldwide telecommunications could play a significant part in putting an end to large-scale starvation and pestilence. On the other hand it has been suggested that marked differences in national capabilities in information technology could spark off the third world war.

If selling BT will have the far-reaching consequences that its management and the government for different reasons suggest it will, we have two years at the most in which to thrash out the issues and plot the course to salvation or disaster. Now is the time to stand up and be counted.

1984 and all that . . .

THIS week's example of the strange things people say about computers was sent in by Tony Phillips of Bury, Lancs, who writes ES.

It's been estimated that computers could answer virtually any question that a human being is likely to ask. The trouble is we're not asking enough to keep the world's computer data banks fully occupied.

Manchester Evening News

LETTERS

Doctrine of information technology

I THINK I caught sight of some of Philip Conford's "technological Jesuits" (CW, June 24) at a quasi-religious conference in Cambridge last week. They wore IT ties and festooned Robinson College with the Dol propaganda leaflets and sticky IT graffiti. On Thursday night two mysterious characters appeared from somewhere, and dined at the conference in navy blue blazers with woven IT badges. Defenders of the Faith? They were never seen again.

The air was already heavy with doctrinal proselytising:—

"Teachers have to be converted . . . we've got to get over . . . of course I'm already preaching to the converted here." Though the conference was officially entitled Educating the Information Generation, there was much evidence to suggest that the real question was: How do we soften up the recalcitrant educational world out there to the doctrine of Information Technology?

In the face of such onslaughts, the educational question is not whether we should present children with the doctrine of IT —

after all the IT82 leaflets are a cheap source of curriculum materials. The significant educational question is a pedagogical one. If we are concerned with educating the information generation in a liberal as opposed to an illiberal society, how does the teacher act as "interface" between the young and such proselytising information as that contained in the doctrine of information technology?

BEVERLEY LABBETT
Centre for Applied Research
in Education,
University of East Anglia

Defining computer science

ACADEMIC computer scientists have long argued that computer science is a mathematical discipline. There is the emphasis on "structured" programming, program verification, and similar fads. It seems as if the argument has been accepted by some polytechnic authorities.

Lyn Antill (CW, July 8) complains that "computing" has now been grouped with mathematics as a non-laboratory subject in the allocation of resources. Mrs Antill has now grasped the consequences of the actions of her computer science peers. Professor Dijkstra — one example among many — claims that the "real" computer is not the physical machine we see, but the machine you think about: the dream, machine. Unfortunately, when computing is moved from an applied discipline (where it belongs) to a mathematical discipline using dream machines, dream machines are cheaper than physical machines.

To observe, as does Mrs Antill, the use of the computer and microprocessor laboratories by her students does not distinguish her students from students in many other subjects. My students (in social science) and many other students (eg business studies) use computers and microcomputers. Social Science and Business Studies are not "laboratory" subjects, and do not tend to use the inflated term "laboratory" to describe microcomputer rooms.

Computer science should try to decide upon what it actually is, and not try to play two games at once.

Dr BORIS ALLAN
School of Sociology
Manchester Polytechnic

The Editor welcomes letters commenting on subjects published in Computer Weekly on an original topic. All letters must be accompanied by the writer's name and address, not necessarily for publication. Letters may be cut.

Needs of silent majority

THE important point about human rights raised by your correspondent (CW, July 8) lost its force through the fact that he/she chose to remain anonymous, thus declining voluntarily the freedom of expression which is the foundation of the human rights case.

The UK Council for Computing Development exists to promote the effective application of information technology in improving the living standards of the world's poor. The exact words (from the Memorandum of Association) are "for the benefit of the public in developing countries."

One can take the view that assistance to certain developing countries is not "for the benefit of the public", and private individuals will properly decline their services on such grounds. For the Council itself to take this line, however, would be high-handed and paternalistic. Unlike some charities and development agencies, the UKCCD is not empowered to make political judgments of this kind.

It would have been possible, perhaps, to include such provision in the original Memorandum of Association, but only at the cost of much contentious argument and the risk of inordinate delay. The UKCCD should be free to further its aims, just as commercial enterprise is, wherever it is legal.

The issue comes back to legislation — it is for governments, and governments alone (Parliament, in the UK case) to assess whether a particular trade with a particular nation is on balance morally right or wrong, and if necessary to legislate against it.

Unfortunately few governments — certainly not ours — are bold enough to take unilateral action on moral grounds. What is needed is an international authority for IT, with membership benefits sufficient to attract a majority of countries but with powers that include the policing of computer use within its member countries.

Given the reluctance of successive UK governments to frame any form of data protection legislation even within the UK, the outlook for such a body is not rosy.

But that is a reason for intensifying the call, not abandoning it, and for supporting organisations such as the World Development Movement and its affiliated movements abroad, which together are fighting to make national governments more aware and more responsive to the needs and rights of the silent majority — the world's poor.

IAN SHEARER
Database consultant

Basing,
London

'NCC does not take sides'

ALAN SIMPSON correctly notes (Focus, CW, July 1) that the National Computing Centre is increasing its efforts to assist the services industry in the further improvement of its marketing skills. This reflects our active support for the objectives of Cosit, the services industry training board, and the excellent work done over the years by the CSA.

Where I take issue with his comment is in his identification of two opposing "sides" where it is necessary for a body such as the NCC to elect which it is to champion. The characteristic of good marketing and professional selling is that it benefits the vendor and the purchaser. It is strongly in the interests of the user to see an im-

provement in the standards of marketing in the industry.

I wholly agree with Simpson in his identification of a divergence of interest where bad selling and an unprofessional approach lead to the practices to which he alludes. May I take this opportunity of assuring him that avoidance of overselling and inappropriate methods is exactly what all of us engaged in the Cosit initiatives are seeking to achieve.

In so doing we seek to benefit the whole computing community. That is the only "side" which the NCC recognises and champions.

DAVID FAIRBAIRN

Director
National Computing Centre,
Manchester

Liveness File

by Don

YOU KNOW WHAT, FREE'S SYSTEM REMINDS ME OF?

SUNDAY MORNING IN PARIS...

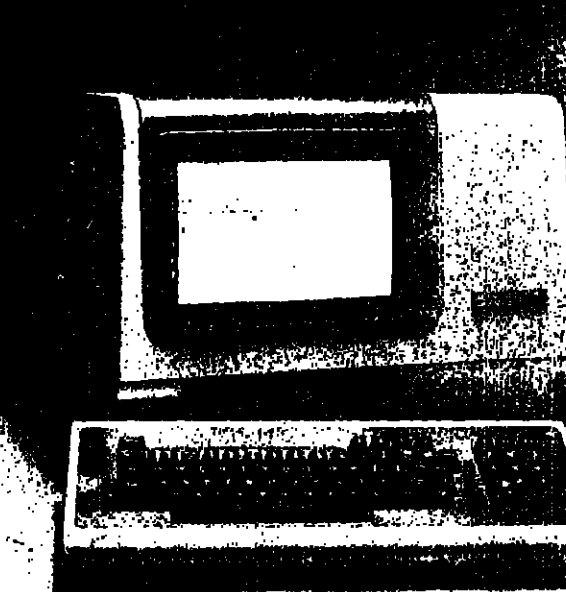


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helping life



Kalamazoo women receive the Computastars trophy and some welcome refreshments courtesy of Gonzalez Byass.



Kalamazoo 1 hold the trophy aloft flanked by Commercial Union (left) and third placed CMC.



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Kalamazoo pulls out all stops to send three teams to Europe

The women who proved to be best at taking their medicine were the Barclays Bank Radbroke Hall team, and Sally Noel-Johnson, the Number One of GCS Cambridge shared the individual number one spot with Louise Cotter from Segs.

Next came another unexpected event - the football and hockey. Not only had the rules been changed so that the ball had to be steered through hoops, but organiser Gordon Cairns neatly avoided any accusations of sexual stereotyping by having the men wield the hockey sticks and the women wear the football boots.

Elaine Perryman of Sasana displayed ball control which would have made her namesake Steve proud, and won the individual contest, and Allison Grant of the women's team took third place in that competition.

First event of the day was one of the infamous Computastars surprises - throwing the medicine ball. Many different, not to say entertaining techniques were tried by the competitors. Some threw the ball over their heads backwards, some attempted to put the object in the same manner as a shot, but the most popular was a sort of semi-twirling movement accompanied by grunts from the thrower and screams of panic from the audience as the weighty orb roared towards them.

On several occasions splendid catches were made, of necessity rather than choice, by onlookers. Commercial Union put in the best team performance in the event, and four people tied for the lead in the individual competition - Bob Kinch of Legal & General 1, John Watson of the London Borough of Barnet 1, Rob Newmarch of Butterworths, and Bill Edwards of Heywood and Partners.

at Crawley back in May. Best male basketballers were Commercial Union and Kalamazoo 1, who shared the team honours, and Mike Hawtree from Rowntree Mackintosh 1 scored maximum points individually, moving into third place overall.

Those competitors who thought that the worst was over after the completion of the medicine ball throwing soon discovered the error of their optimism. The innocuous-sounding wheelbarrow relay soon sorted the men from the boys and the women from the girls.

The Number One was required to hold the feet or legs of his or her team's second competitor and then run to the end of the course where their roles would be reversed. On their return to the start line, the Number One had to repeat the task with the third member of the team.

The lunch interval saw Kalamazoo women in the lead, with Legal

& General's Anne Bragg one point ahead of Sue Richardson from Digital. Leading men were Bob Kinch of Legal & General 1 and Malcolm Shuttleworth of Kalamazoo, tying on 43 points. The closeness of the competition was reflected in the four points that separated the first 11 competitors.

In the team competition, Commercial Union had drawn out a six point lead over second-placed Barclays International.

Another new event started the afternoon's competition. The 400 metres relay had an additional tactical element: Three runners competed from each team, but the hand-over points were left to the captain's discretion. Teams getting it right were the women of Legal & General 1 and the men from Kalamazoo 1.

It was the turn of Kalamazoo's second team to shine in the football, tying with Rowntree Mackintosh 1 for the lead, Mike

Hawtree of the latter team putting in a particularly good performance which also won him the individual title. Anne Bragg extended her lead in the women's individual with a fine display of hockey skills which assured her team, Legal & General 1 of the team honours.

Gordon Cairns had mentioned that he considered the sprints a little on the easy side and that he would be introducing a new element. This came in the form of three car tyres located between the hurdles into which the competitors had to daintily skip as they sprinted between them. Failure to insert the feet correctly resulted in the docking of one sprint.

Kalamazoo women were the most successful exponents at this modified event, stretching their lead at the top of the table to an impressive 24 points over second-placed Legal & General 1.

Kalamazoo 1 took the men's team title, with their second team completing the grand slam with a second place only one point away. Commercial Union did not fare as well, but still managed to hold on to first place with a margin reduced to three points.

And so we came to the final event, the steeplechase. With the closeness of the competition at the top of the men's team and individual tables, almost anything could have happened. But it turned out to be the London Borough of Barnet Number One, John Watson's best event of the day. Watson won the individual heat to move into ninth place.

Jeff Harrison and the rest of the Kalamazoo 1 team put in a terrific finish to oust Commercial Union from the top of the table. CMC finished third, Kalamazoo 2 fourth, and the remaining two places in the European final went to two of the Barclays teams, Barclays International and Barclays Radbroke Hall.

Although his team narrowly missed the trip to Europe, Bob Kinch, Legal & General 1's Number One can draw considerable comfort from winning the individual title. No fewer than four contestants tied for second place, the final order being decided on the performance in the steeplechase.

So it was that Jeff Harrison of Kalamazoo 1 took the silver medal, with Malcolm Shuttleworth, Mike Hawtree and Dicky Dodd sharing the bronze.

In the women's steeplechase, Kalamazoo and Legal & General tied with 37 points apiece, and Anne Bragg of Legal & General took the individual title with another win, but it was Kalamazoo who won the day with a 24 point margin over Legal & General. Barclays Radbroke Hall and Digital finished third and fourth respectively and will also be making a journey to Brussels in October.

Winners of the small units section of this year's competition were Butterworths, finishing 14th overall, and one place behind them was Rowntree Mackintosh 2, winners of the veteran contest.

Kalamazoo's splendid all-round performance meant that the Commodore Companies Trophy for the best combined male and female teams went to them. Legal & General were placed second, and Barclays Radbroke Hall third.

The day was rounded off by the presentation of bottles of sparkling wine to all the winners, courtesy of Gonzalez Byass, and the triumphant Inland Revenue tug-of-war team carried off not only a trophy, but a case of beer as well.

October 10 is the date set for the European final at Brussels, where the winning teams will be up against competition from Holland and Belgium. Computer Weekly will be there to report on the meeting, and, with any luck, to join in the celebrations again.

Computer Weekly thanks Commodore Computer for providing a system to calculate results at each stage of this year's Computastars.



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Rowntree Mackintosh (2): Chris Skidmore*, Dawn Harding, Nicola Ellis, Frances Mann, Nicole Robinson

GCS Cambridge: Sally Noel-Johnson, Sue Benham*, Joanne Wallis, Karen Kibby, Julie Murray

British Mail Order (1): Bill McNulty, Les Denny*, Marilyn Wainwright, Linda Wright, Les Eves

Sasana: Elaine Perryman, Sharon James*, Alan Robinson, Jilly Davis, Anne Hardy

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Data 100: Angela Murray, Debbie Dimmock*, Lynn Dett, Hilary Wernick, Mark Fuller

Sasana: John Byrne, Diane Baldwin, Susan Whitworth, Keith Fitzgerald, Libby Atkinde, Libby Pink, Margaret Bowles, Christine Fowler

Dane EMI: Sue Burrell, Ann Cunningham, Jane Nicol*, Debbie Funnell, Liz Blaney

Barclays Bank Radbroke Hall: Elizabeth Foyes, Anne Davies*, Janet Marquand, Nicola Skidmore, Lindsey Heywood

Legal & General: Anne Bragg*, Valerie Edwards, Ann Fildes, Susan Brown, Michael Smith

COMPUTASTARS

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Taking part in this year's UK finals

LISTED below are those who took part in the UK finals. An asterisk denotes the team captain.

MEN

Comptons: Jack Cook, Neil Bowater, Stewart Latham, John Wright, Paul Allen

Digital (2): Bob Thurston*, Ian Turner, Alan Wile, Sue Rensell, Steve Lacey

Legal & General (1): Bob Kinch, Andy Carr, Phil Mitchell, John Pollock, Tony Tripp

Midland Household: Stuart King, Gary Henrich, Howard Hewitt*, Paul Ashew, Paul Ellis, Paul Davis

NPI (2): Peter Rabinson*, Chris Rigby, Eddy Best, Bob Davies, Chris Willis

Rowntree Mackintosh: Roger Brown, Eugene Taylor, John Morgan, Nick Vels

Rowntree Mackintosh (2): Mick Jones, Pete Hall, Liam Brown, Maryn Scott*, John Connolly

Kalamazoo (2): Malcolm Shuttleworth, John Wakelam*, Roy Hendrickson, Barry Dumas, Roy Osborn

London Borough of Barnet (1): John Watson, Neil Prince, Grant Hayes, Andy Badger, Michael O'Keefe

Gonzalez Byass: David Bennett*, Bob Alley, Dominic Lunn, Michael Radcliffe, Ian Morris

Paul Moore: Cor Paul Baulieu*, Ian Collins, Jim Harkins, Chris Harris, Steve Leggett

Sasana: Neil "Warren", Simon Ward, Andy Cooper, Kevin Paul, Paul Young

Legal & General (2): Glyn Brinson, Roger Courtney*, Colin Foyes, Steve Thomas, Dave Wile

Comptons: Unlaid: Leslie Davis, Gordon Jones*, Andy Guttridge, Graham King, Gordon Davis

Lambeth: Steve Vince, Peter Jones*, Ray Walker, Grant Kitcher, George Woods

Rowntree Mackintosh (1): Mike Hawtree, Tim Bradish, John McLoughlin, Alan Johnson, Andy Normandale

Barclays Bank Gloucester: Phil Holley, Steve Newman*, Andy Rose, Steve MacDonnell, Mike O'Keefe

FISL: Trevor Reed, Barry Daniels, Dave Greenwood, Mike Dickinson*, Nigel Denton

British Aerospace: David Appleton, Russell Bates, Philip Bolton, Stewart Ayling, Nigel Biltons

Sheffield Insulating: Michael Miles*, Keith Whelan*, John Whaling, Mark Warren, Stephen Wason

Royal Insurance: Mark White, Martin Hughes, John Edwards, Peter Walling

Barclays Bank International: Hugh Nicholas, De Wale*, Gary Royle, Ian Carter, Peter Fuller

London Borough of Lambeth: Geoff Clarke*, Mark Altherton, Eddie Plancett, Ron Smith, Brian Young

Barclays Bank Radbroke Hall: Dicky Dodd, Christopher Butler, Timothy Thornton, Steven Hunter, David Carr, Paul Young

Butterworths: Mike Freeman, Tony Stephenson, James McDonald

Kalamazoo (1): Jeff Harrison, Richard Jephcott, Phil Wright, John Whitlock, Richard Smith

London Borough of Barnet (2): Victor Jones*, Tony Ashworth, Paul Ede, Chris Skidmore, Brian Hall

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Widened: Dave Cross*, Mike Parks, Alan Scott, Geoff Williamson, Roger Mullaly

Heywood & Partners: Bill Edwards, Clive Bennett*, Phil Roberts, Phil Miller, Gordon Aiges

BL Systems: Dave Alden, Joe Lewis*, Dave Richards, Martin Vile, Mike Harbon

Digital: Sue Richardson*, Debbie Bouch, Toni Franklin, Sue Devcon, Carol Bunting

Kalamazoo (2): Steve Lacey, Theresa Smith*, Rosalind Moore, Wendy Williams, Fiona Sogo

Rowntree Mackintosh (2): Chris Skidmore*, Dawn Harding, Nicola Ellis, Frances Mann, Nicole Robinson

GCS Cambridge: Sally Noel-Johnson, Sue Benham*, Joanne Wallis, Karen Kibby, Julie Murray

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As the environment is primarily IBM, we are particularly interested in hearing from those with experience of ON-LINE ANALYSIS gained in a CICS/COBOL environment.

In London we have a department whose sole responsibility is to recruit for the New York office, answer any questions you may have, assist with relocation and generally help and advise. Our New York office will process all visa applications. Brief descriptions of some of the positions available are given below.

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We are looking for 5 to 10 years overall experience, which must include ON-LINE ANALYSIS, with the full range of analytical and design skills and, preferably, a programming background.

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for our health care team to work on the redevelopment of child health and other systems for an ICL 2868 computer to be installed early next year.

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Application form, job description and further details from the Regional Personnel Officer, East Anglian RHA, Union Lane, Cambridge CB4 1RF (Tel: Cambridge 61212 ext 325).
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London

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If you have the professional attitude and technical skills which this post demands, please contact Louise Romain on 01-734 7394 (or on 01-407 2531 evenings) quoting reference number 4901.

Client interviews will be held next week, so dial now — you have nothing to lose and everything to gain!

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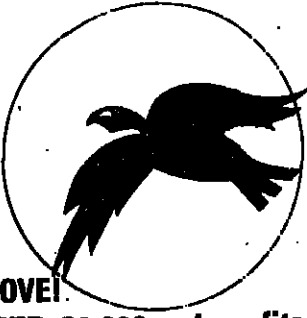
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Wilts/Avon: Salary to £10K

A number of Micro-Processor Design and Development Engineers are sought by a leading micro-computer and semi-conductor manufacturer. As there are a considerable number of positions available, the variety of skills required is, necessarily, diverse. However, experience in one or more of the following areas is essential: customisation of Operating Systems such as CP/M or MPM, with a salary premium attached to a knowledge of a networking O.S.; compiler and cross-compiler development particularly if utilising PASCAL or C; familiarity with a leading MDS and, also, experience in the design and production of interface hardware and software. A degree of customer contact is a feature of most of these positions and, therefore, an outgoing personality and good communication skills are required. Ref: L/30/B

VAX Progs/Designers

London & E.E.C.: Salaries to £15K

A leading International Company specialising in the development and sale of communications software is seeking Programmers and Designers for its Central London and overseas facilities. Suitable candidates should hold a numerate degree and have two years' subsequent programming or systems design involvement. Fluency in French is essential and it is preferable to have had exposure to either a PDP 11/RSX-11M or VAX-VMS configuration. Candidates who are fluent in a foreign language especially French or German will be of particular interest to our client. A degree of mobility is necessary since most positions involve both European and Transatlantic travel. Ref: L/30/C

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South Midlands: Salary to £15K

A highly regarded supplier of Hardware and Software is seeking a number of Data Communications and Networking Engineers for its Research and Development facility. Suitable candidates will currently be employed in a development capacity with either a Systems House or Manufacturer. Particular technical skills should include at least two years' programming experience with high level language such as Pascal or C and preferably in addition have some practical knowledge of an IBM or DEC Assembler language. Of particular interest will be candidates who have an in-depth knowledge of communications protocol techniques - X-25, SDLC/HDLC. For the more senior positions it is essential that respondents have good personal presentation skills since you will be expected to liaise and co-operate with both senior technical management and non-technical users. Ref: L/30/F

Simulation Engineers

Central London: Salary to £11K

A long-established Engineering Systems Supplier based in Central London has an immediate requirement for additional Fortran Programmers and Simulation Engineers. All respondents must hold at least one numerate degree and additionally offer a minimum of one year's post-graduate industrial experience. Whilst our client's software and system products are portable there is some preference for candidates who are currently Fortran programming in a PDP/VAX, Prime or Hewlett-Packard environment. For all programming and design positions, you should have current work experience on a major simulation project where you have participated in the implementation and integration of on-board real-time operational software. Ref: L/30/G

Technical Authors

Suffolk/Cambs.: Salaries to £10K

A leading British supplier of micro-computer based systems has an urgent requirement for Technical Authors. Successful applicants will have a minimum of two years' experience designing and writing user documentation for at least one hardware or software product. A good command of the English language is essential as is the ability to communicate with both technical and non-technical personnel. Successful applicants will be offered excellent opportunities for career development and our client anticipates early progression into either a management position or into systems support. Ref: L/30/H

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ICL VMEB, IDMS
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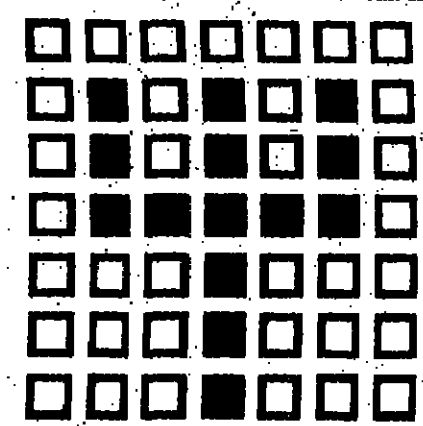
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If you did not receive an original letter of invitation and wish to
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"Micro Computer Draw" or contact the office for an abbreviated
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HURRY THE COMPLETED FORM TO US FREEPOST

In order to give all interested entrants to the raffle a fair chance,
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The winner's name will be announced in all our press advertise-
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Contact with the winner will, of course, be made by telephone or
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For your information, the micro computer chosen for our draw is
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FREEPOST HASTE

Good Luck

Yours sincerely
H. PROGRAMMING AND SYSTEMS LTD.
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PS: Please tell your colleagues about our draw because your
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PPS: Please make sure you include your name, address and
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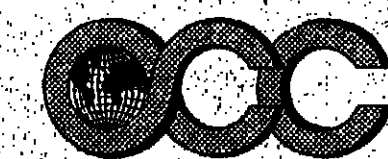
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This recently created post is the first stage in the establishment of a full Data Processing Audit Section within the Internal Audit Branch.

The post holder will report directly to the Internal Audit Controller and will be responsible for planning the work of his section, testing and reviewing the internal controls incorporated in all computerised systems, developing and maintaining audit software and training local staff in computer audit methods.

The ideal candidate will be a qualified accountant with professional accounting qualifications ACCA, ACA or CPA and having a minimum of seven years extensive post qualification audit experience which should include either specific Data Processing Auditing with design or use of Audit Software or Computer Systems design. Knowledge of ICL Hardware & Software will be an advantage.

Benefits include a high salary dependant on age, qualification and experience and ranging between US\$32,770 and 39,120 per annum, good career prospects, free medical care in the UAE, free furnished family accommodation, paid home leave for the family and educational assistance.

Candidates are invited to apply in English giving full details of education, training and experience supported by copies of relevant certificates separately to both the following addresses, not later than 3 weeks from the date of publication:

1. Senior Personnel Officer (CPA)
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2. Department of Petroleum,
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Abu Dhabi, U.A.E.

Knowledge of Arabic will be an advantage. Any applications which fail to comply with the above will be disregarded.

(0438)



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Application forms and job descriptions from the Personnel Division, Room 708, Brent House, High Road, Wembley, Middlesex, returnable 13th August, 1982. Telephone 01-803 0371 (24-hour Answerphone service). Reference Number D/481 must be quoted.

London Borough of
BRENT

(0433)

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Further particulars from Assistant Registrar (Sci & Eng), PO Box 369, Birmingham B15 2TT, to whom applications (three copies) full curriculum vitae and naming three referees should be sent by Friday, August 13, 1982. Please quote ref: CWP1.

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(0400)

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Application forms may be obtained from BBC Engineering Recruitment Officer, Room 334, 33 Cavendish Square, London W1A 6AA, quoting reference number 82.F.4054/CW.

For further information, telephone Paul Jarrett, Head of Computer Systems Unit, SCPD on 01-740 5440.

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(0425)

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(0404)

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UEA

SOFTWARE DEVELOPMENTS IN WINCHESTER

Office Technology Limited (OTL) is a dynamic young company making pioneering developments in office automation. It is a member of the Information Technology (ITL) Group, the independent British group dedicated to the efficient and productive management of all forms of information by today's most advanced technology. OTL has an ambitious development programme of products for the future. Several key personnel are now required. They will join a dedicated high level group working at the forefront of technology.

Project Manager, Software Development

Reporting to the Software Development Manager, the new Project Manager will be responsible for 8/10 engineers working on one or more software projects from conception to completion. The job covers all aspects of a software project, including documentation, development equipment and budgets. The job is split 50/50 between administration and technical direction/management. The Project Manager will have technical authority on the project, and responsibility for completion to time and budget. Candidates should be under 35 and be graduates in science, engineering or computer science. A minimum of 8 years in a product related environment is essential on real-time software developments. Ref: PM/SD

OTL Office Technology Limited

DO YOU NEED TRAINED TECHNICIANS?

Twelve technicians with specialist knowledge and practical training in servicing microprocessor based systems will be seeking employment nationwide from August this year. Having completed a full-time M.S.C.-sponsored training course, they will be equipped with the skills to repair and maintain a wide range of microelectronic products and allied equipment.

For further information about the training or the trained persons, contact Les Thurgood or John Thorpe at Blackpool and Fylde College, Ashfield Road, Bispham, Blackpool. Tel: 0253 52352 Ext. 235.

PROGRAMMER

Post No. 177 Salary from £3,000 - £7,000

The Centre operates an ICL 2960 Computer with 8 Mbytes main memory, 16 Kbytes disc backing storage and a normal range of peripheral as its main machine, supporting a number of over 40 terminals. VME 286 is currently under development within the Computing Centre.

An ICL 2960 using MINIBASIC provides a BASIC Service to both the Polytechnic and local schools. A large variety of microcomputers are used within the Polytechnic and local area including the following: Apple II, Commodore 64, etc.

The Centre operates a full range of software development tools including: Pascal, Fortran, C, etc. and a full range of software development tools including: Pascal, Fortran, C, etc.

Agencies should not be approached for further information. Applications should be sent to: The Centre for Computing, Polytechnic of Central London, 100 Tottenham Court Road, London W1P 0LP. Tel: 01-253 8300.

FOR CLASSIFIED ADVERTISING USE

DIRECT LINE
01-661 0121

MANAGER - NEW BUSINESS MINI/MICRO SYSTEMS

£25K + QUALITY

Our client is an established software house consultancy with a highly successful and profitable business built on sophisticated mini and micro-based solutions for the leading international accountancy firms.

A dramatic increase in recommendations to their clients has created the need to appoint an experienced manager with a successful track record in large mini-based systems and a broad commercial knowledge to head up the new sector.

Potential directorship and equity participation.

For further information contact: Brian Meadowsley or David Lloyd-Jones. Ref: CW/82/

LLOYD CHAPMAN ASSOCIATES

01-499 7765

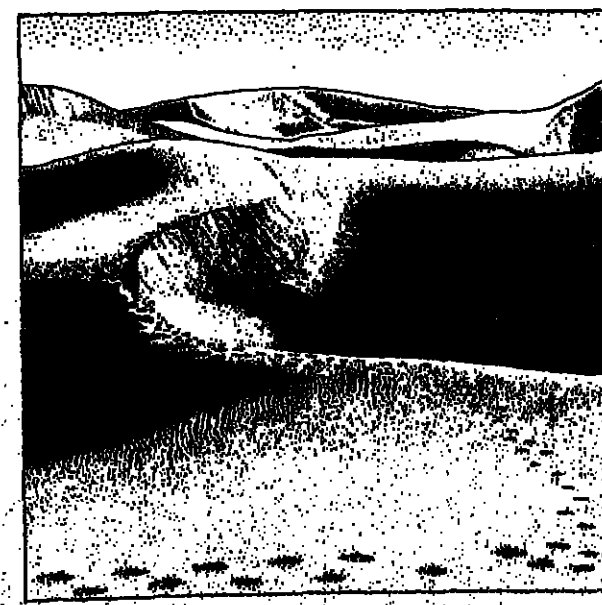
Mainframe Computer Field Engineers to £16,000 Tax Free Saudi Arabia

"The challenge is getting there, finding a fault and putting it right"

NCR Saudi Arabia have substantially improved their sales penetration during recent months, and now wish to recruit additional experienced field engineers to install and maintain customer owned equipment.

In recognising the importance of these requirements, we offer an attractive package including earnings of up to £16,000 per annum, free of income tax, with end of contract bonus, car allowance, medical coverage, furnished apartment and utility provisions, up to 45 days' annual holiday with regular return flights to the U.K. and excellent career opportunities.

The successful candidates are likely to offer a minimum of 4 years' experience in the maintenance of mainframe computer equipment including mag tape drives, disc drives, multiplexors, high speed printers and communications devices. An HND in



Electronics Engineering would be an advantage but it is less important than sound field experience preferably encompassing NCR products. The successful candidates will receive thorough training either in the UK or USA.

The appointments offer two or three year renewable contracts on bachelor status, although married status may be available in certain circumstances.

We have retained Capp Associates to answer your queries and to act on our behalf. Please write or telephone (24 hour answering service) to them, quoting ref: CW116-2F.

Capp Associates, Capp House, 98d South End, Croydon CR9 3SD.

Tel: 01-686 9593
International & UK Recruitment Consultants

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CONTRACTORS

Register now for your next assignment

URGENT REQUIREMENTS

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IBM SYSTEM 38 RPG111
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MAAPICS
IBM ADABAS NATURAL + OR - PL1

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ANALYST/PROGRAMMERS
PROGRAMMERS
SYSTEMS DESIGNERS

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PROGRAMMERS
SYSTEMS PROGRAMMERS
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PROGRAMMERS

PROGRAMMERS
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HOLLAND

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ANALYST PROGRAMMERS
ANALYST PROGRAMMERS

A Computer Search contract starts by calling Kelly on
Hemel Hempstead (0442) 40761 (24 hour answer service).

Computer Search (Contracts) Ltd.,
Hamilton House, Marlowes,
Hemel Hempstead, Herts. HP1 1BB.

(0442) 40761

Computer
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Contracts

(0444)

COMPUTER OPERATIONS SUPERVISOR

Kendall Globe Limited are Travel Agents and Freight Forwarders with 200 employees and a current annual turnover of about £30 million. A period of considerable expansion is planned and the company is near to completing the computerisation of its accounting system, based on an ICL System Ten computer.

The company wishes to appoint a Computer Operations Supervisor for the following role:

1. To control, operate and maintain its ICL System Ten computer system, aided by one assistant.
2. To control modifications to the system and work on major system development projects.
3. To liaise fully with hardware suppliers and software contractors on problems with and enhancements to the system.
4. To schedule the flow of daily processing work and to liaise with the user sections in the control of documentation input and output from the computer.

Suitable candidates (male and female) with a minimum of 5 'O' levels, will have a substantial level of previous experience in operating computers for accounting systems - preferably ICL System Ten Computers. Age is not material but candidates must have had sufficient experience and authority for this key role working with an accounting function of about 30 people. A willingness to work regularly out of normal office hours is essential.

The salary is £8,300 p.a. plus non-contributory pension scheme and BUPA cover.

Applicants should submit full career details to date to: Mr A. R. Rosenberg, Financial Controller, Kendall Globe Limited, 35-37 Alfred Place, London WC1E 7DY.

(0281)

Lombard Elizabethan Insurance Plc

are looking for an

Experienced Data Processing Technician

to lead a team developing

An On-Line Database System

Applicants should have experience in the insurance industry, should have developed and implemented major on-line systems and should have non-management experience. Practical knowledge of COBOL, TPS and IMS software and ME29 or other ICL equipment would be a significant advantage. No one with less than 5 years data processing experience should apply.

Excellent fringe benefits.

Salary will be commensurate with ability and experience.

For further details please write or telephone (24 hour answering service) quoting reference CW117-21.

CAPP ASSOCIATES
01-888 8883

Capp House, 96d South End, Croydon CR9 3SD
International & UK Recruitment Consultants

Analyst/Programmer

for in-house systems

to £10,000-£11,000 negotiable

Providing the computer systems needed to support WANG's immensely successful business operations in the UK is an exciting challenge in anyone's language. You will be a key member ensuring the smooth running of the company's internal commercial systems and will have the opportunity of applying new technology to applications. The job is based at our new UK headquarters in Isleworth, although occasional travel to other sites may be necessary.

Applicants, aged mid-20s and educated to at least 'A' level standard, require a minimum of 2/3 years' COBOL experience and should have at least 6 months in an analysis role. Experience of WANG or IBM kit is preferable and on-line experience essential, as is an ability to relate to both computer professionals and non-technical staff within the company.

Benefits include pension, BUPA, free life assurance and Stock Purchase scheme. WANG is a fast-growing company and opportunities for career progression are exceptionally good.

Interested applicants should send full cv. to: Mary Gilgallon, WANG (UK) Limited, WANG House, 661 London Road, Isleworth, Middx. TW7 4EH. Or telephone 01-560 4151 for an application form.

WANG

LEADERS IN OFFICE AUTOMATION

(0281)

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NEW CHALLENGE~NEW YORK

THE COMPANY

Exceptional opportunities exist for Sales and Software professionals to join Arbat, the leading banking systems house. Already with over 75 users, Arbat is installing banking and communications systems in the United States, Canada, South America, Europe, the Middle East and Far East, making further steps in Arbat's determined international expansion program.

To date, the company has developed a highly successful range of software products, which include ABS (banking systems) Inflex (message switch) and a fully integrated Money Transfer System.

Arbat is seeking to recruit staff for its expanding operations in New York and Canada.

ANALYSIS/PROGRAMMING - TO \$40,000+ BENEFITS

The main functions of these positions include working on new developments/modifications in a small team environment. It will include analysis and programming in high level languages for real-time banking and funds transfer applications and the direct support for Arbat's clients' systems.

The up-to-date nature of the product environment demands the use of high quality DP technical staff.

Applicants will preferably be experienced in the following areas:

- International Banking applications
- Funds Transfer applications
- Basic and/or C Language programming
- DEC PDP or VAX hardware and operating systems

Equally as important as experience, is the applicant's confidence and willingness to learn the functions and technical aspects of these roles and the ability to work with a high degree of self-motivation.

Applicants will already design and program to a high standard and be looking to work in a friendly and professional environment.

SALES TO \$ NEG + COMMISSION & BENEFITS

The position requires a sales specialist who has experience in international banking systems and telecommunications to sell advanced real-time computer products in the American market place.

True motivation to succeed will be rewarded as Arbat's excellent product range in the American market place provides ample scope in return. Success will be rewarded by a competitive salary, and commission structure, coupled with excellent career prospects.

BENEFITS

All positions offer excellent career openings into a successful dynamic and expanding company.

All necessary travel visa and accommodation arrangements will be undertaken by Arbat for the overseas appointments, and all UK and overseas appointments carry excellent salaries which are regularly reviewed on merit.

To receive further details and an application form, telephone the number below, or return the coupon at your earliest convenience, using the Freepost service.

Please send an Application Form and Company Profile to:

Recruitment Consultants **0434**

Surname _____

First name _____

Full address _____

Position applied for _____

Home tel _____

Work tel _____

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Make your mark in our exciting, ambitious development programme

up to £14,000 : South Bucks

Amersham International is a successful, growing company manufacturing and selling high technology products for the health care and research fields.

Rapid worldwide growth in our business demands effective management information systems and our Corporate Information System Department is being expanded to tackle an ambitious long term systems development programme covering production, finance and marketing applications. The Department covers D.P., O.R., O & M, Office Systems, Telecommunications Planning and Information Technology. We have been operating on-line systems for over a decade and already service a network of 70 terminals in the U.K.

We are actively reviewing our future hardware needs and it is almost certain that future developments in computer systems, Office Technology and Networking will lead to an

integrated network of distributed processors, each maintaining its own subset of the company database. We are certainly committed to the use of advanced software techniques and application development tools to capitalise on the database and to reduce systems maintenance in the future.

As our European and American operations become increasingly integrated with our U.K. network we have the opportunity to offer the right people interesting projects and genuine career building experience. We need Systems Analysts, Programmers and Software specialists at all levels of experience to make their own individual contribution to the projects we are tackling.

operating systems, utilities and telecommunications software is essential. COBOL Preferred. Ref. FY.3.

Operations Supervisor

to plan hardware requirements, set standards, control procedures and direct the day to day operation of all computer equipment. 5 years' operating experience of ICL hardware and software is essential. Supervisory experience is a distinct advantage. Ref. FY.4.

For all posts, we offer an attractive benefits package which will include:

- * excellent working conditions
- * 23 days' holiday
- * superb countryside location
- * subsidised restaurant
- * active sports and social club
- * relocation assistance, where appropriate.

Systems Analysts

At least 18 months - 2 years commercial or production systems experience is essential, preferably gained in an on-line installation. Ref. FY.1.

Senior Programmers

At least 2-3 years experience of COBOL is essential, preferably gained in an on-line installation. Ref. FY.2.

Computer Operations Support Analyst

to operationally evaluate new products, provide technical help to users, assist in the development of communications network. Proven experience of ICL

ACTION

Please write with a detailed c.v. to Tim Phillips, Senior Personnel Officer, at the address below. Alternatively, telephone Little Chalfont (02404) 4444, ext. 3569 for an application form.

Amersham

Amersham International plc
White Lion Road Amersham
Buckinghamshire HP7 9LL

We want the Best

Analysts Analyst/Programmers Programmers

Remuneration Package to £14,500pa



R.A. Williams (Systems Consultants) Limited
The Insurance Specialists
Fleet, Hampshire.

R.A. Williams (Systems Consultants) Limited is a small specialist consultancy dealing exclusively with the data processing requirements of the Insurance Industry.

Our consultants, analysts and technicians, between them, account for over 150 years of experience in fields such as Life, Pensions, Unit Linked, Broker Service and Reassurance. Because of the continuing expansion of our client base we want to meet people who have the flexibility and experience necessary to become part of an exciting, growing company.

We would like to hear from you if you can meet any 3 of the following criteria:

- you have worked on - or managed - at least one major insurance implementation. Knowledge of Life Assurance or the London Market would be particularly desirable
- you have at least 5 years experience in data processing with a solid COBOL background
- you have a sound working knowledge of Texas Instruments 990 equipment
- you are capable of being promoted - within a short period - to Project Manager with full business responsibility for all aspects of a major project
- you enjoy working with small professional project teams who are frequently under pressure, and you have a Flexible attitude to your work

Other benefits include: Merit awards based on recognisable achievement, profit-related bonus, flexible working hours, non-contributory pension, BUPA, personal accident and health insurance, opportunities for overseas travel.

Please contact David Hendry at:

Ferguson Thorley Bowles Associates Limited

International Personnel Consultants

15 Clarence Street, Staines, Middlesex TW18 4SU Telephone: Staines (0784) 59247.

Wrekin District Council is situated within easy reach of the beautiful Shropshire Countryside and offers:

- * 9 day fortnight
- * Rewarding and varied work
- * Free life assurance
- * Generous relocation expenses

In addition, housing is amongst the cheapest in the country (£26,000 for 3 bedroom detached).

Wrekin District Council and Telford Development Corporation have set up a joint computer section, serviced by a new IBM 4331 with DOS/VSE, ICCF, RAMIS, due to be upgraded to model group 2 with VM/CMS later this year. Currently the Council has two vacancies.

SYSTEMS DEVELOPMENT PROGRAMMER

(Up to £10,000 p.a. plus pay award from 1 July, 1983)

COMPUTER PROGRAMMER

(Up to £7,875 p.a. plus pay award from 1 July, 1982)

These two posts will be concerned with the analysis, design and introduction of computer systems. The senior postholder will lead a project team and will be responsible for preparing project plans and following them through to implementation. Both postholders will also provide assistance to departmental staff in the operation of programmes.

Applicants should be qualified to HND level and have substantial experience in this field. A knowledge of IBM equipment, its operating system and assembler programming language is essential.

Application forms are available from the Personnel Unit (Tel: Telford 80951 Ext 451) and should be returned to the Personnel Manager, Malins House, Telford, Shropshire TF3 4LD not later than 12th August 1982.

District of the Wrekin

BOX NUMBERS

Box Number.....

c/o Computer Weekly
Quadrant House
The Quadrant
Sutton, Surrey SM2 8AS

Box number replies should be addressed to:

UNIVERSITY OF ESSEX
Department of Computer Science

Micro-Processor Systems Engineer

Applications are invited for a post as Micro-Processor Systems Engineer in the Department of Computer Science (Computing Service). Salary of Computer Officer Grade 1A (£6,070-£10,575).

The duties of the post will include the design, development and maintenance of specialist hardware and software and the provision of consultancy services in both hardware and software aspects of micro-processors to users throughout the University. Applicants should have a degree in Computer Science or the hardware side or similar qualifications and relevant experience.

The successful candidate will be expected to contribute to the general operation of the Computing Service and will join an existing Engineering group reporting via its manager, to the Assistant Director of the Computing Service.

Applications (fax copies) including a curriculum vitae and the names and addresses of two referees, should reach the Registrar (writing AG/141/CW), University of Essex, Wivenhoe Park, Colchester CO4 3SD, from whom further particulars may be obtained, by 18 August 1982.

BRIGHTON POLYTECHNIC
Department of Computing and Cybernetics
RESEARCH ASSISTANT
£4,800-£5,350

To work initially for two years with a possible extension for a third year, on the investigation of depth perception from visual images. Computer input is received from a camera and stored digitally. The perceived image will be used for the control and movement of robot arms.

Applicants should have a good honours degree in computing or mathematics. Registration for a higher degree will be encouraged.

Further details and application forms from the Deputy Head of Personnel, Brighton Polytechnic, Brighton, BN2 4AT. Tel: Brighton 83365. Ext. 2837. Closing date 18 August 1982.

CAD/CAM SALES EXECUTIVE

£25,000 + (ON TARGET)

Applied Research of Cambridge, a market leader in CAD/CAM systems wishes to appoint a sales executive to handle its activities in the southern half of England.

The successful candidate can expect to receive gross earnings in excess of £25,000 - there is no upper limit. Applicants should have sales experience in interactive graphics or EDP. They must be able to demonstrate the ability to handle contracts, mainly in architectural, industrial and engineering markets, from initial enquiry to final agreement.

Write to:-

Recruitment Officer, Applied Research of Cambridge Ltd., 4 Jesus Lane, Cambridge, CB5 8BA.

Enclosing details of qualifications and experience.

L. E. R. S.
SYNTHELABO
has vacancies in its Pharmaceutical Research Center (L.E.R.S.) in the Paris area for

TWO COMPUTER SCIENTISTS

Suitable candidates will possess a degree in computer science or equivalent qualification and should have a good working knowledge of UNIX and C or PASCAL. Experience of any of the following would also be of interest: PDP 11, LSI 11, VAX, PRIME, networks, DBMS, management information systems, toxicology, signal processing and biomedical research. A working knowledge of the French language would be useful but it is by no means essential. E.E.C. nationality would be an advantage. Applications accompanied by a curriculum vitae will be treated in strictest confidence and should be sent directly to: L.E.R.S., Direction Administrative et Technique, 58-60 rue de la Glacière 75013 PARIS - FRANCE.

RADIO TELEFIS EIREANN, THE IRISH NATIONAL BROADCASTING ORGANISATION, INVITES APPLICATIONS FOR THE POST OF

SYSTEMS PROGRAMMER

Applicants should have a detailed knowledge and experience of ICL's 2900 Operative System, SCL, Super-Structure Products and Hardware. ETE operates two ICL 2956 computers. The operating systems are DME2, VME 2900 and CME. RTE also uses IDMS and IDMSX, with ICL's Data Dictionary System. Workloads are both Batch and On-line, with programme development under MAC.

The post is a permanent one, with a salary in the range:

IR pound 10,252 to IR pound 14,521 per annum.

IR pound 10,765 to IR pound 15,247 per annum.

(from 15th September 1982).

Postcards, requesting application forms, should be sent to:

PERSONNEL ADMINISTRATION MANAGER
RADIO TELEFIS EIREANN
DONNYBROOK
DUBLIN 4
IRELAND

Closing date for receipt of completed application forms - Friday, 13th August, 1982.

SYSTEMS ANALYST

This is a challenging position involving the investigation into existing systems, with the object of modifying where necessary and implementing new approaches. Candidates should be educated to degree level or equivalent, with 2 or more years' relevant practical experience of business systems in a computerised environment. Salary is negotiable. Company benefits include 5 weeks' annual holiday, subsidised canteen and contributory pension scheme.

Please write with full c.v. to:
David Bennett
BSI British Standards Institution
101 Pentonville Road, London N1 9PL

Pascal Programmers

London

£7,000 to £12,000 + Benefits

This newly formed and rapidly expanding software company are involved in M.I.S. package development and econometric modelling.

Utilizing the new generation of 16-bit micros linked by local area networks, you will be involved in the development of conceptually new products thereby unleashing the power of this new machinery to the user.

Applicants should have a good grounding in PASCAL together with one or more of the following:

- * File Handling
- * Graphics
- * Compiler/Interpreter Writing
- * 8080 Assembler

Recently qualified graduates who feel they can work in a technically demanding environment should also apply.

Please Contact: David Hendry.

Ferguson Thorley Bowles Associates Limited

International Personnel Consultants
15 Clarence Street, Staines, Middlesex TW18 4SU
Telephone: Staines (0784) 59247. Telex: 8814148

Hampshire Based Systems House

Our Client is a rapidly expanding systems house specialising in the development and implementation of interactive systems for the industrial sector.

With sophisticated, high quality products they are set to accelerate into a significant market position.

They are building dedicated teams of career-minded professionals:

Project Managers To £15,000+ Car

Possessing approximately eight years of broad data processing experience, covering programming analysis, design and implementation preferably of manufacturing applications; your responsibilities will cover the total system from feasibility to implementation.

Essential requirements include experience with man management, project co-ordination, client liaison and the ability to work to deadlines within budget.

Senior Programmers £9,000-£11,000

A minimum of three years COBOL programming on any computer hardware is essential plus some knowledge of manufacturing systems. Equally important are program design and documentation of on-line applications and the ability to be effective in a project team environment.

A first class benefits package is offered in addition to the excellent starting salaries.

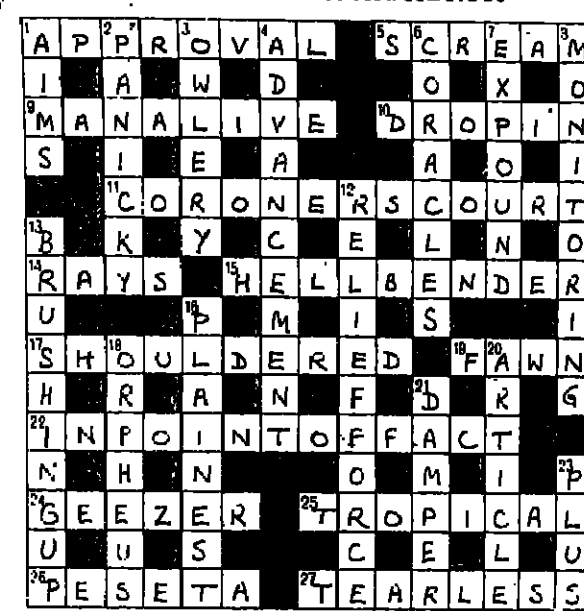
Please contact:
David Hendry

Ferguson Thorley Bowles Associates Limited

International Personnel Consultants
15 Clarence Street, Staines, Middlesex TW18 4SU
Telephone: Staines (0784) 59247. Telex: 8814148

CROSSWORD

Solution to Prize Crossword No 30



O&M analyst Michael Carter of National Mutual of Australia's London branch wins our £10 prize this month. Runners-up Pamela Smith, a programmer with RNSD Cope-nace, and John Brooke, senior programmer with Cannon Assurance in Wembley, Middlesex.

**DEPARTMENT OF ELECTRONICS**

The Department of Electronics has been awarded a substantial research contract by a major British electronics company to develop a compiler for VLSI digital system design. In the first instance, this project is funded for two years from October 1982 and includes support for a full-time Research Fellow.

The successful candidate is likely to possess considerable experience in one or more of the following areas:

- Computer design
- VLSI system design
- Computer aided design
- Logic simulation
- Software engineering

Extensive computing facilities are available including a distributed network of Motorola 68000 computers.

The salary scale is Research Fellow Grade 1A, £6,079-£10,575.

Applications (two copies) giving details of qualifications and experience together with the names and addresses of two referees should be sent to Mr T. Barrett, Electronics Department, The University, Southampton, SO9 5NH.

(0371)

**LECTURESHIP IN COMPUTER STUDIES**

Applications are invited for two posts of Lecturer in Computer Studies.

Candidates should have a higher degree in Computer Science. Preference will be given to applicants with experience of interest in computer systems architecture, computer networks, operating systems, performance evaluation, simulation, and systems analysis and design. The appointees will be required to lecture as well as to participate actively in research, and will be expected to assume duties in September 1982.

Annual salary (superannuation) will be on an 11 point scale HK\$120,840-217,380 (£1=HK\$10.70 approx.). Starting salary will depend on qualifications and experience.

At current rates, salaries tax will not exceed 15% of gross income. Housing benefits at a rental of 70% of salary, children's education allowance, leave and medical benefits are provided.

Further particulars and application forms may be obtained from the Association of Commonwealth Universities (ACU), 25 Gordon Square, London WC1H 0PF, England, or from the Appointments Unit, Secretary's Office, University of Hong Kong, Hong Kong. The closing date for applications is 24 September 1982.

(0370)

PSION MICROCOMPUTER PROGRAMMERS & ANALYSTS

Psion is a rapidly growing microcomputer software house.

We require creative, skilled and able programmers and analysts. Applicants should have experience in microcomputer languages and machine-code on one or more microprocessors. This is an exciting opportunity to work with a dedicated team in Central London in the fastest-growing area of computers.

Salary range £8,000 to £13,000 per annum depending on skill, experience and creative potential.

PSION LTD
2 Hunsworth Mews, Gloucester Place, London NW1
Telephone: 01-723 6919 or 723 3408

(0344)

Leicestershire TECHNICAL Computing/Electronics

Educational Computing Centre, Leicester.

Salary 12/3 £5084 - £8333

To undertake a key role in the running of the newly established educational computing centre. Duties include demonstrating, setting up and servicing educational computing equipment. Candidates should preferably have a computing or electronics background with qualifications at HND or equivalent level.

Further details on receipt of a.s.a. Apply (no forms) giving full details, names and addresses of two referees and enclosing a.s.a. to the Director of Education, County Hall, Glenfield, Leicester by 16th August.

EQUAL OPPORTUNITIES POLICY. Applications are welcome from suitably qualified and/or experienced people regardless of race, disability, sex or marital status.

NatWest Jobs

Data Processing Support Staff

National Westminster Bank offers opportunities to join a team which supports computer systems run on the latest IBM hardware (3081) in an MVS-SP/IMS environment.

We have a limited number of vacancies in our Operations Technical Support Group at our London Computer Centre, Abie Street, near Aldgate, where our installation is currently servicing a large number of systems including an extensive teleprocessing network.

Applications are invited from candidates who have experience in JCL/Utilities and software related to high technology equipment, together with proven skills in the implementation of new systems.

Dependent upon experience, a salary in the region of £7,580 including London allowances is envisaged, together with an attractive range of top company fringe benefits.

To find out more please write for application form to: Miss J. Coles, National Westminster Bank PLC, Recruitment Shop, P.O. Box 165, Heron House, 325 High Holborn, London WC1.

Nat West

SCOTTISH EXAMINATION BOARD, DALKETH, MIDLOTHIAN

COMPUTER OPERATIONS POST

Salary scale £5,982-£6,501 (under review)

This is a permanent staff post. Applicants should have experience in operating IBM-type computers preferably an IBM 4331 using VM/CMS and in job assembly, scheduling and librarian duties. Knowledge of clerical control procedures and data preparation would be of advantage. Two-shift operating will be required at least between March and June each year and a shift allowance will then be paid. For other periods single-shift will apply initially but overtime and weekend work may be necessary.

Conditions of Service will be generally those of the Local Government Service. Application forms from Establishment Officer, Scottish Examination Board, Ironmills Road, Dalkeith, Midlothian EH22 1LE (Tel 031 663 6601) to be returned by 20 August 1982.

(0377)

FIELD SERVICE ENGINEERS

BK + O/T + S/BY + CAR CHOICE

Superb opportunity to join a leading Manufacturer of prestige Minis, super minis and systems. This company believes its Engineers should be software involved and offers excellent software/op. system training at its own centre.

Team working environment - possible foreign travel (voluntary) - internal promotions - a chance to get into systems.

If you have a sound technical background, seek to enhance your career into 32 Bit CPUs and systems - then ring NOW.

If you already have a super Mini system background this could be reflected in a basic of up to £12k in a managerial or support role.

Don't delay Ring Mike Today

01-649 8441 or 01-394 2359 (after 7pm)

(0401)

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MICROCOMPUTER SERVICE ENGINEERS

Microserve, the nationwide field service division of the Comart Group of Companies, has established service locations in Glasgow, Manchester, Birmingham, London, Cambridge and Southampton.

We are looking for experienced service engineers to strengthen our Microserve team in the Birmingham and London areas.

If you have a minimum of 5 years' experience in the electronics industry we would like to hear from you. We would expect you to be familiar with TTL, MSI and LSI Technologies with the ability to fault find complex logic to component level. Salary will be negotiable, dependent on experience and qualifications.

Please write or telephone for an application form to: June Hamilton, Comart Limited, Little Hall Road, Eaton Socon, St Neots, Cambs. Telephone Huntingdon (0480) 216008.

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(0385)

THE Comac CONTRACT

UK
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IBM CICS DLI COBOL Prog. Analysts
Urgent

IBM PLI CICS COBOL Prog. Analysts
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IBM Sys 34 RPG111 Prog.
Urgent

IBM DLI DOS VSE COBOL CICS System Prog.
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IBM Series 1 RPG Prog. Analyst
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CONVERSION PROGS.
ICL 1900 PLAN DMS TP to UNIVAC 1100 COBOL
Burroughs 800 CMS to IBM MVS COBOL to COBOL
H. L. 84 to IBM MVS COBOL to COBOL
IBM ASSEMBLER to COBOL (MVS TSO/SPF)
IBM COBOL MVS VSAM TCAM COMMS INTERFACE
IBM ASSEMBLER COBOL MVS TCAM

ICL 2900 VMEB IDS Prog. Analyst
Urgent

DEC PDP 11 RSTS BASIC+2 Progs.
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DEC PDP11 VAX COBOL Prog.
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UNIVAC V77 Progs.
UNIVAC 1100 DMS Progs. (Germany and Holland)

USA
HP1000 UMLX (South Carolina)
HP1000 UMLX C Progs. Urgent

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For further information on the above
vacancies also Overseas vacancies please
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We have a reputation for moving quickly and efficiently so for an
informal chat telephone us today or send your c.v. as soon as
possible.

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27 TOWN CENTRE, HATFIELD, HERTS.
Telephone Hatfield (07072) 65999 or 89889

24 HOUR ANSWER SERVICE

The Royal Borough has an ambitious approach to the use of computers and computer systems. Currently running on IBM 4341 with VM/SP, DOS - VSE/AF, 2 CICS and VSAM. We are shortly moving to VTAM and the linking of 810s to the 4341.

SYSTEMS PROGRAMMER Ref CW7/11
£10,538-£11,889 p.a. inc (pay award pending)

We need an experienced Systems Programmer to assist us to maintain the momentum of change in the organisation. Heading a team of four, the position will be responsible for the evaluation, installation, maintenance and development of all software in addition to the development and control of network procedures. You should have at least three years experience as a Systems Programmer, sound assembler knowledge and experience of the software currently installed.

PERSONAL COMPUTING OFFICER Ref CW7/12
£9,998-£11,001 p.a. inc (pay award pending)

Personal computing is seen as a key area of expansion supplementing our own development projects and allowing user staff to enhance existing and develop new systems. The work will include conducting feasibility studies into user requirements and recommending the use of personal computing facilities. In addition, the work will involve the design of systems using 8100 and mainframe facilities.

You should have at least five years D.P. experience including analysis and knowledge of system software in addition to a working knowledge of APL and BASIC. Benefits for those posts include modern offices, subsidised restaurant, sports and social club, interest free season ticket loan, generous holiday arrangements and flexitime.

For further information contact Tony Elford on 037-9494 Ext. 585.
Please Tel: ext 282 for application forms.
Closing date for applications 10th August, 1982

The Royal Borough of KENSINGTON & CHELSEA
Applications are welcome from suitable qualified disabled persons

(0386)

SMR

Sales & Marketing Recruiters Ltd

A Sales and Marketing Services Company

SALES EXECUTIVES (SALES MANAGER DESIGNATE!)

NATIONAL RESPONSIBILITY

It's not very often the chance occurs to get in at the beginning of a new sales operation within a fast expanding and already successful, well established high technology company. Our client, Langton Information Systems, has already built its annual revenue into seven figures and with the financial security of a very large commercial group behind it, sees its future hampered only by the lack of a Senior Sales Executive to fully exploit its considerable business potential.

Langton has built up an enviable reputation for forward thinking and public excellence in the computer based creation, management and publication of textual data and graphics, with particular emphasis on electronic printing and publishing into a wide variety of media, including Videotex, photocomposition, microfilm and laser printers. The range of products and services embraces consultancy, systems development, software products and the provision of specialist services.

We are seeking an accomplished Sales Executive in

CENTRAL LONDON

- With substantial experience of selling computer software products. Experience of the Viewdata/Videotex and/or electronic publishing market, would be a bonus, but by no means essential. First class selling skills, enthusiasm, commitment and the ability to absorb and disseminate technical information are essential qualifications for this job as is the talent to quickly graduate into a national sales management role. It is envisaged that on target earnings will be

IN EXCESS OF £20,000 + 2 LITRE CAR

Please supply complete career details to Alasdair Scott or Peter Hubble, quoting reference SSE/072.

(0373)

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SALES TRAINING, MARKET RESEARCH, RECRUITMENT

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Software Technology Research

The Science and Engineering Research Council has just initiated a national programme of academic research into Software Technology. The programme's objectives are to stimulate more high quality software engineering research, to improve the academic software technology base of software tools and computing facilities (UNIX, PERQ single user systems, high speed local and wide area networks), and to promote technology transfer between academia and industry.

The programme will last at least 3 years and is being co-ordinated and supported by the Computing Division of the Rutherford Appleton Laboratory which requires two further staff.

Software Technology Co-ordinator:
Someone with a formal, state-of-the-art understanding of Software Engineering who can guide the national research effort and build links with industry. The successful candidate is likely to have had post doctoral research experience. Appointment will be made at Senior Research Associate level for a fixed 3 year term.

Software Technology Programmer:
Someone to mount and develop software tools, generated by the programme, on the network of PERQS running UNIX, PASCAL or UNIX experience desirable, but not essential. Final year undergraduates in computing-related subjects may apply. Appointment will be made at SO or HSO level.

Scientific Officer £5,432-£7,399
Higher Scientific Officer £6,840-£9,136
Senior Research Associate (fixed 3 year term) £8,590-£9,876

Appointment as a Higher Scientific Officer requires a good honours degree and several years relevant experience.

The Laboratory is a friendly community with its own restaurant and extensive sports facilities nearby. Benefits include a local transport service, generous holidays, and a non-contributory superannuation scheme.

Contact: Recruitment Office, Personnel Group, Rutherford Appleton Laboratory, S.E.R.C., Chilton, Didcot, Oxon. OX11 0QX, or telephone, Abingdon 21900 Ext. 510 quoting ref. VN 048.
Closing date for applications: 23rd August 1982

(0389)

serc Rutherford Appleton Laboratory

SOUTH COAST

If you'd like to know more about vacancies for Operations, Programming or Analysis in the Southern Counties ring

The Managing Director of CBS APPOINTMENTS
Bournemouth (0202) 232115 or at home 0935/4645 (0202-232115)

(0477)

INNOVATION BUSINESS SYSTEMS ANALYST

Established seventeen years ago, Technical Indecon is a rapidly expanding company that specialises in the distribution of a wide variety of microfilm and microfiche based information systems that provide essential technical data to engineers, designers and buyers.

We are about to upgrade to a DEC VAX 11/780 computer system to aid the production process. Late this system will be used for the development of new products. To assist us, we wish to recruit a systems analyst free thinker who meets the following requirements:

- At least two years experience in business systems analysis.
- Limited computer programming experience.
- Professional attitude.
- Age 25-30.
- A knowledge of VAMP and Fortran would be an advantage.

We are particularly anxious to find someone who is not steeped in the traditions of conventional analysis, specification design, coding, etc. etc. We propose to pass straight from analysis to implementation via the ALIAS system development tools. If you are looking for better ways of fulfilling your role as a business systems analyst, write us details of education, career and present salary.

The second is a variation of the first. Your clients are probably more aware than anyone about who are the good and the bad local salespeople. Those with whom you have a good business relationship will be only too delighted to let your situation be known to those they regard as suitable.

However, word-of-mouth is only effective if applied in a planned and forceful manner. Do not mention to your salespeople in passing that if

(0404)

SALES BIT

Quality of Management — 20

How to get the right person for the job

OKAY, you read last week's Sales Bit — and even if you didn't you are probably aware that it is likely to take a little luck and three months or more to recruit the kind of salesperson you need. Perhaps you already appreciate that a vacant territory could be costing you five figures a month in lost revenues. The question is, how do you solve the problem of securing salespeople of the right calibre?

A large proportion of those people involved with selling in the computer industry would be unemployable in any other industry and the greater proportion of them are likely to be seeking re-employment, if there is any justice in this world.

Unfortunately the jobs they are seeking are selling jobs within the computer industry and like as not they will be presented to you as soon as the word gets out that you are looking for sales personnel.

So what is the answer? Unfortunately there isn't one, at least not in absolute terms. However, there are some basic guidelines to follow, which can at least remove some of the hassles and insert a little objectivity into the process.

Let's look at the alternative recruitment methods available to the sales manager. There are four which just about cover the full range of practical means.

You can attempt to make direct personal contact with your competitor's best salesman; you can shanghai willing victims in their local pub straight after work; you can even molest stand-weary salesmen at Compec, but these are generally considered to be socially unacceptable methods.

The usual approaches are:

- Word of mouth;
- Self-operated recruitment campaign;
- File search of agencies;
- Agency operated recruitment campaign.

Word-of-mouth is an under-used and underrated recruitment process that can be effective if used in a positive manner as opposed to a half-hearted, vague, shot-in-the-dark. This approach can be divided into two strategies. First, by formally asking the existing salesforce to put out the word to salespeople they meet in the field that the need for new recruits exists.

There is no better recommendation for a potential employer than the endorsement of an existing employee. Offer a financial incentive if you must — but I feel that such artificial motivation should be unnecessary in the right team environment.

The second is a variation of the first. Your clients are probably more aware than anyone about who are the good and the bad local salespeople. Those with whom you have a good business relationship will be only too delighted to let your situation be known to those they regard as suitable.

However, word-of-mouth is only effective if applied in a planned and forceful manner. Do not mention to your salespeople in passing that if

might be a good idea if they could let any competitive salesmen or clients know that the need exists — that will not work. They will probably forget or never get around to it.

This approach needs to be put out as a firm instruction to ensure that selected clients are informed of the need within a given time frame. This can often be an effective means of recruiting, for it also has the double benefit of producing well qualified and recommended candidates and costs very little.

On the other hand, you may decide to carry out your own advertising-based recruitment campaign. After all, it is simply a matter of shoving an ad in the paper and handling the response isn't it?

Oh I see, you've already had that disaster! Then you will know that it is not as easy as it might appear. There are lots of reasons why, but the main one is that despite the shake-out of recession, the computer industry is still desperately short of salespeople who can achieve real sales success.

The really good ones are already earning a high income in a worthwhile job with a satisfactory employer, so why should they leave and start all over again with you? Not easy!

This being the case you have to spend a significant amount of time considering how to sell the job or jobs you have available, just as if you were selling your product and company to a potential client. You need to ask yourself a few basic questions before you start hacking out some advertising copy.

First and foremost you need to seriously address the fundamental question: Why should someone want to come and work for us?

In other words, what are the feature benefits of our company as an employer and what can we offer in career, financial, status or educational terms that will make us attractive to the kind of people we wish to employ.

If you cannot come up with some positive answers, forget it and find a new company for yourself. If you can come up with some good answers then be sure these are featured in your advertising.

When potential candidates read through the job opportunities columns, only those who need jobs spend any time in ensuring that no relevant advertisement is missed. Those who are merely reading out of interest, and therefore the kind of applicants you would like to meet, are unlikely to spend more than four seconds per page.

All that remains for your consideration is the use of a specialist recruitment agency, of which more next week.

Alan Williams

PUZZLE ANSWER

All six numbers are squares, but with the digits reversed.